



# GUAM MINIMUM WAGE STUDY

JANUARY 2017

MARKET RESEARCH & DEVELOPMENT, INC.  
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## PREFACE

Market Research and Development, Inc. (MR&D) was engaged in September 2016 through MOA No. 16-PS-002 to conduct an “independent, objective, and comprehensive economic analysis of the minimum wage increase in accordance with Public Law 32-229, signed into law on December 30, 2014.” MR&D assembled a team of professionals from Guam and Washington state to fulfill the requirements of the analysis. The study integrates a microanalysis of Guam’s economy with quantitative and qualitative information collected from primary research conducted among businesses and households on Guam. The research was performed over the period between the September 7, 2016 and January 27, 2017.

### A. The Research Team

Principal Investigators: Dr. Rosanne Jones, Ph.D. Professor of Economics, University of Guam.

Anne Althausen, Research Coordinator for the University of Washington Minimum Wage Study, who is currently conducting minimum wage studies for Seattle and Chicago.

Investigator: Dr. Aline Yamashita, Ph.D.: President, The Leadership Company.

Project Manager: Jay R. Merrill: President, Market Research & Development, Inc.

Research Coordinator: April L. Aranda

## ACKNOWLEDGEMENTS

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The project required the cooperation of several organizations that should be recognized. For their information, time, and hard work the following organizations should be acknowledged.

- Organizations:
  - The Guam Department of Labor;
  - The Department of Revenue and Taxation;
  - The Guam Contractors Licensing Board;
  - The Department of Public Health and Social Services; and,
  - The University of Guam, Research Corporation.

In addition, special recognition is due to a few interviewers that worked extremely hard to engage lower income households, and selected businesses whose views contributed greatly to the findings of the study:

- Lydia Tenorio;
- Maryann Mesa;
- Diane Prejean; and,
- Rocio Merrill.

Finally, we acknowledge the University of Guam and MR&D research staff for their hard work, extensive hours and dedication.



## EXECUTIVE SUMMARY

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In 2014, a study of Guam's minimum wage was established by public law 32-229 to assess the impact of a proposed hourly minimum wage increase from \$7.25 to \$8.25. In January 2015, the minimum wage increase became law. Presented in this report is a retrospective review of this minimum wage increase on Guam's economy and the response by island business firms and households to its implementation nearly two years later.

What effect did the one-dollar increase in minimum wage have on Guam's Gross Domestic Product (GDP), unemployment rate, consumer price index, labor participation rate, employment by sector, and demand for public assistance programs? A review of these indicators tells something about how Guam's economy was performing in 2015 with the new minimum wage. What effect did the increase have on minimum wage households and employers in 2015? Surveys of Guam's businesses and households reveal how they responded.

Research findings begin this report to provide perspective on what impacts might be expected from a minimum wage increase on Guam. With this background, the study team posited some assumptions. Regarding the macroeconomic effect, the minimum wage increase would likely not significantly affect Guam's economy in 2015. Given the estimate of 6,000 workers at hourly wage rates below \$8.25 in 2014 (less than one-tenth of Guam's workforce), the scale and scope of impact on a \$5.7 billion economy would likely be minimal. The study design relied on secondary data as indicators of Guam's economy in 2015 comparable to prior years.

The study also relied on primary data to assess impact of the minimum wage increase on minimum wage households and businesses that employ minimum wage workers. A total of 480 surveys were conducted on Guam from November-December 2016 for this purpose. A significant contribution to this study was the work of Anne Althausen, Research Coordinator for the University of Washington Minimum Wage Study, who is currently conducting minimum wage studies for Seattle and Chicago. The instruments used for the Guam Business Survey (GBS) and Guam Household Survey (GHS) were constructed from surveys developed by the University of Washington team in collaboration with the research team on Guam.

The sampling protocols for the GBS relied on 2015 business license data and information from the 2014 Guam Occupational Employment Survey (OES). Guam businesses are licensed in three main categories of interest to this study: service (72%), retail (20%), and wholesale (8%). The business license data also categorizes businesses by organizational structure, which was used as a secondary criterion. A third was to assure that businesses most likely employing minimum wage workers were included in the sample. The 2014 Guam Occupational Employment Survey was referenced

to identify occupations which fell within minimum wage ranges to cross-reference with employers in the business license registry. The GBS sample was therefore representative of the types of Guam businesses by sector, by organizational type, and by most likely to employ at least one minimum wage worker. From this sample, 2000 businesses were randomly selected for contact.

The Guam Household Survey (GHS) was also conducted during November and December 2016. A random sample of households was selected from the current Guam telephone directory. The survey was designed to screen for at least one minimum wage worker residing in the household. The interview was terminated if this criterion was not met. The sample also included a subset of households receiving public assistance.

The study results indicate that Guam's economy continues a growth trend. Impact of a minimum wage increase in 2015 is not discernable from macroeconomic indicators, as there is no significant change in projections for the island's economy from 2014 to 2015. This finding is also evident from interviews with Guam businesses and households who indicated no significant changes in employment.

## II. INTRODUCTION/OVERVIEW

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Communities throughout the United States are deciding whether to raise the hourly minimum wage, and if they do, by how much. In the November National Election, 20 states and the District of Columbia approved ballot measures to increase minimum wage rates by January 1, 2017. This brings to total 29 states that have adjusted minimum wage rates to meet or exceed the federal minimum standard of \$7.25 per hour. The U.S. Territory of Guam, while not included in this count, is among them. Several large U.S. cities have increased minimum wage rates above their state minimums. Reasons for minimum wage increases span a range of socio-economic goals, such as alleviating poverty, modulating wage inequality, and fostering preferences for work over welfare. A prevailing factor in the states and cities that have raised minimum wage rates is the comparative cost of living. Those with higher costs of living are more likely to increase minimum wage rates. What impact do higher minimum wage policies have on the economies that implement them?

Studies of minimum wage impact suggest a downside — increased unemployment, a shift from full-time to part-time work, inflation in overall wage scales, decreased rates of job growth, higher demand for labor-reducing technologies, business relocation to lower wage areas, and other economic disruptions. These findings, however, appear inconsistent —evident in some communities or not at all in others. A meta-review of minimum wage research conducted by the San Francisco Federal Reserve Board shows consistent evidence for only two findings — a higher minimum wage harms employment prospects for low-skilled workers, and a higher minimum wage does not solve the problem of poverty.

This report begins with a review of findings from studies conducted in various communities over several years. This review provides background and a design frame for the Guam minimum wage study, and thereby connects Guam to the national discussion. The study began with a review of Guam's macroeconomic condition at the time of the minimum wage increase and changes one year after. At the study's outset, with relatively fewer workers earning less than \$8.25 an hour and Guam's economy in an expansionary phase, the macroeconomic impact was assumed to be minimal. The effects, however, on Guam's households and business firms were expected to yield more information. Four hundred eighty (480) interviews were conducted to assess the impact of the minimum wage on Guam households and businesses. This report presents findings and commentary on the impact of a minimum hourly wage increase from \$7.25 to \$8.25 on Guam in 2015.

### III. PREVIOUS EMPIRICAL STUDIES OF THE MINIMUM WAGE — A RESEARCH REVIEW

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Minimum wage research has been a mainstay interest of U.S. policy makers, industry groups, and the public. While individual perspectives may vary, research has essentially focused on whether minimum wage improves economic productivity and yields benefits to workers as well as to the businesses that employ them. This research overview begins with the theory of competitive labor markets as a policy frame and follows with highlights of findings on major themes relevant to the policy debate.

#### A. The Theory of Competitive Labor Markets

Economists rely on a model of competitive labor markets to underpin minimum wage research. In competitive labor markets workers compete for available jobs and employers compete for skilled workers. Wage rates tend to adjust depending on demand and supply of available labor. Labor demand is derived by the context of employment. Some jobs, especially those requiring specialized skill, tend to have higher wage rates than those for which less skill is needed. Wage theory in this context asserts that labor markets are fluid relative to supply and demand for labor and wage rates tend to naturally adjust to market equilibrium — all else equal, wage rates fall with a surplus of workers and rise when a shortage exists. Research shows, however, that wage levels tend to stagnate in poorer economies with an excess of low skilled workers, and minimum wage prevails.

Minimum wage jobs are essentially jobs for which the barriers to entry are few, the number of workers capable of performing these jobs is many, and technology and outsourcing are viable alternatives to labor. This profile underpins the qualities which make some wage rates less competitive than others and establishes that low skilled workers have a harder time commanding wage increases. With an established research base, studies of competitive labor markets are better understood as an integrated collection of themes, which frame the debate as to whether, and how, increasing minimum wage distorts notions of a competitive labor market. Following is a presentation of a few themes introduced as headline making concerns about minimum wage and effects on businesses, households, and the overall economy.

#### Raising the Minimum Wage Causes Job Loss

A low wage worker has a higher risk of losing a job. Those working in accommodation and food services industries are more likely to experience job loss than workers in other commercial sectors. One explanation for job loss among low wage workers is that they lack skills and/or work behaviors to keep a job. (Reich, Allegretto, Jacobs, & Claire, 2016, pp. 23-24). Others cite that low wage workers are less risk adverse, as they have little to lose by leaving a job to seek employment elsewhere. Policies to increase minimum wage rates are undertaken for many reasons.

Reducing unemployment among low wage workers tends to be one. But does it work? Recent studies suggest that a higher minimum wage at \$10.10 per hour may reduce turnover among workers who voluntarily leave their jobs to seek higher wages. The Congressional Budget Office (CBO), however, forecasts a reduction of 500,000 workers in 2016 if the federal minimum wage of \$10.10 is implemented. The report notes the potential for disproportional hardships affecting regions with current levels of high unemployment. (Congressional Budget Office, 2014, p. 9). Recent reports from U.S. Department of Labor indicate that employment rates are improving in the United States and the CBO forecast is not supported by current U.S. labor data.

### Teens, Young Adults, and Low-Skilled Workers Experience Greater Job Loss than Other Workers

Teenagers and young adults are an identified subset of those at risk for job loss when wage rates rise. Teenagers hold seasonal and part-time after-school jobs that are characterized by high rates of turnover. Jobs held by high school students and young, unmarried adults are usually temporary or starting jobs with starting, minimum wage salaries. One economic analysis of job vulnerability among this group noted higher wage rates reduced aggregate earnings of these low wage workers. Several studies validate these findings with the use of multiple methods to help control the issue with comparing states of different economies (Federal Reserve Bank of Francisco, 2015). Other studies confirm a decline in teenage employment when a higher minimum wage was implemented, notably a 2014 report of a 1.5 percent decline in adolescent employment in the United States. When looking at the regional effect—a 10 percent increase in minimum wage represents a 7 percent decline in adolescent employment. (Kalenkoski, 2016, pp. 3-4). Much of this points to a labor substitution effect. With higher minimum wages, firms may substitute the less skilled worker for higher skilled adults, driving up unemployment among teens and young adults. Firms may also employ other labor-saving approaches as noted below.

### Businesses Employ More Labor-Saving Approaches

With higher labor costs, business firms respond with labor-saving strategies. Such strategies tend to fall in three categories—a shift from labor to technology, a reduction in the number of full-time workers, or a reduction in employer-sponsored benefits. Technology has replaced segments of the workforce where job functions are characterized as repetitive manual labor. With higher costs of labor, employers tend to seek higher skilled workers or reduce the number of lower skilled workers. (American Legislative Exchange Councils, 2014, p.4). The decision of whether a business firm implements automation also depends on both capital and labor costs (Reich, Allegretto, Jacobs, & Montialoux, 2016, pp. 22-23). A business decision to reduce the number of workers to adjust to higher labor costs tends to occur during periods of recession, when the firms realize fewer growth options or the ability to raise product/service prices to offset established higher wage scales. As benefits are considered compensation, adjustments to the amount of benefits paid for by the employer may be reduced or the costs of existing benefits shared with the

employee. Firms tend to use a mix of these strategies. Lowering wage scales tends to be more difficult for business firms, especially for firms with minimum wage workers.

### **Income-Inequality, Poverty, and Worker Bias are not Substantially Reduced**

Studies of income inequality have developed from a line of inquiry, which follows from redistribution theory. Redistribution theory suggests that income transfers to balance effects of wage gaps can be achieved by policies involving taxation and transfer payments, such as public assistance programs. Rebalancing a wage gap between higher wage and lower wage workers is another policy goal of minimum wage legislation at a macroeconomic level. Studies of economies which have greater wealth disparities are often economies that struggle with pervasive poverty and tend to have lower rates of productivity as measured by GDP. However, at a microeconomic level, businesses view higher wage costs as higher production costs and seek to minimize costs to maximize profits. A policy distortion occurs as these two perspectives sometimes conflict. At a national level, the incentive is to improve national wealth through investments in education and worker training to advance productivity. Wage rates however may stagnate among some firms and some population groups or higher rates of unemployment occur when businesses seek to reduce labor costs by reducing its workforce. Higher rates of unemployment are likely to occur after minimum wage policies are implemented during periods of recession, thereby exacerbating the levels of income inequality. Increasing the minimum wage rate does not fully address income inequality as these issues are often more business sector and regionally specific nor does it resolve many of the pervasive problems of poverty that are frequently attributable to factors other than income. (Litwin, 2015, pp. 2-3).

### **Economies Experience Impacts of Minimum Wage Increases Differently — Geography Matters**

There appear to be regional differences in the impact of a minimum wage increase on communities. This is in part attributable to the economic condition of the region prior to a minimum wage increase. Some regions have geographic features that are advantageous for economic growth. These are often areas with natural resources, a highly skilled workforce, and multiple routes for transportation (Kalenkoski, 2016, p. 4). These economies are often vibrant with opportunities for job creation, expansion, and capacities for commanding high production prices in various markets. Minimum wage policies implemented in regions of prosperity are absorbed without disruptions to businesses or the workforce, especially in growth cycles. However, this may not be the case in communities facing economic recession or are part of regions with significant levels of structural unemployment. Minimum wage policies in these economic conditions are likely to have a negative effect of higher unemployment and be a burden on businesses without the capacity for growth. Cities and states with higher GDP levels, a strong business base, highly skilled workforce, and a growth outlook are more likely to establish higher minimum wage policies and view a wage floor as economically sustainable over time.

## IV. THE MACROECONOMIC CONTEXT OF MINIMUM WAGE – – GUAM

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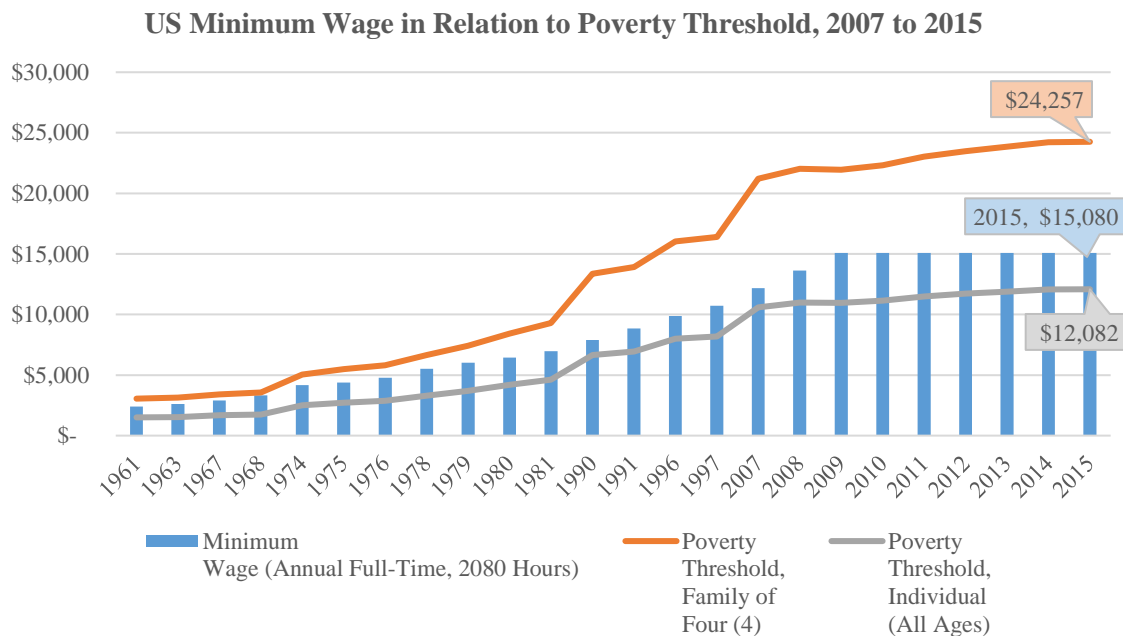
Minimum wage studies point out effects that wage increases have on macroeconomic activity. Most note fewer negative effects when economies are growing in terms of real output. The cost of a wage increase is absorbed by businesses when they are better able to raise prices or sales volume to increase revenues. Overall, unemployment levels decline and inflation tends to increase, as more workers earn more and demand more at higher prices. The cyclical nature of growth and recession is thought to maintain a healthy balance of growth over time with government policies designed to stimulate or slow economic activity beyond expected levels or duration. Interest rate adjustments, and fiscal policies—tax, spending, and transfer payments—are approaches used by government. Some policies, such as unemployment insurance, act as automatic stabilizers to maintain economic activity in downturns. But as researchers note, there are few examples of states using macroeconomic stabilizers to maintain wages relative to the purchasing power of the dollar. Most use legislative policy to adjust minimum wage rates. These policies are often fraught with problems of timing—the time between realizing a change in economic condition with the actions of the policy correction. Such policy lags contribute to less than effective policy implementation and lead to support for an automatic stabilizer approach. In the case of minimum wage, adjustments would need to fluctuate under different economic conditions. As wages are often viewed as sticky prices (difficult to adjust downward), the use of this approach has not been broadly adopted.

The gap between the federal minimum wage and the U.S. consumer price index has widened over time. Some theorize that a minimum wage tied to inflation would alleviate the need for formal policy actions by government to raise the minimum wage. Others note that federal policies may be out of sync with regional and local outlooks. The issue of local conditions different from national trends supports state and local government policy actions, which may vary from federal minimum wage standards. The matter is further complicated by a reported decline in the percentage of workers who earn the federal minimum wage or less. A 2014 U.S. Bureau of Labor Statistics report, *Characteristics of Minimum Wage Workers*, notes that “workers earning the prevailing minimum wage or less declined from 4.3 percent in 2013 to 3.9 percent in 2014. These data are derived from self-reporting surveys conducted in 50 states excluding the U.S. Territories. Other findings from this report show that the typical minimum wage worker in the United States is under the age of 25; more women than men report earning less than the prevailing minimum wage; and those without a high school diploma earned the federal minimum wage or less. The report also notes that among the major occupational groups ten percent of hourly paid workers were employed in service occupations. The industry that employed the highest percentage of minimum wage workers was leisure and hospitality, the majority in restaurants and food services.



The federal minimum hourly wage rate is currently \$7.25 per hour. As Chart 1 shows, the established minimum wage rate falls below the poverty threshold (\$24,257) for households with a family of four. Minimum wage workers, single, under the age of 25, with a high school diploma as reported in the 2014 U.S. Bureau of Labor Statistics report, would exceed the poverty threshold. Chart 1 calls attention to the fact that earning a full-time minimum wage does not alleviate poverty, nor does it disqualify minimum wage households from participating in federal public assistance programs. Single minimum wage earners would qualify for public assistance if annual earnings fell below \$12,082. Some research indicates that single minimum wage workers are more prone to job dropout. This may in part be attributable to seasonal employment among teens and young adults in school. For others, job dropout may be a way to maintain income support and assistance.

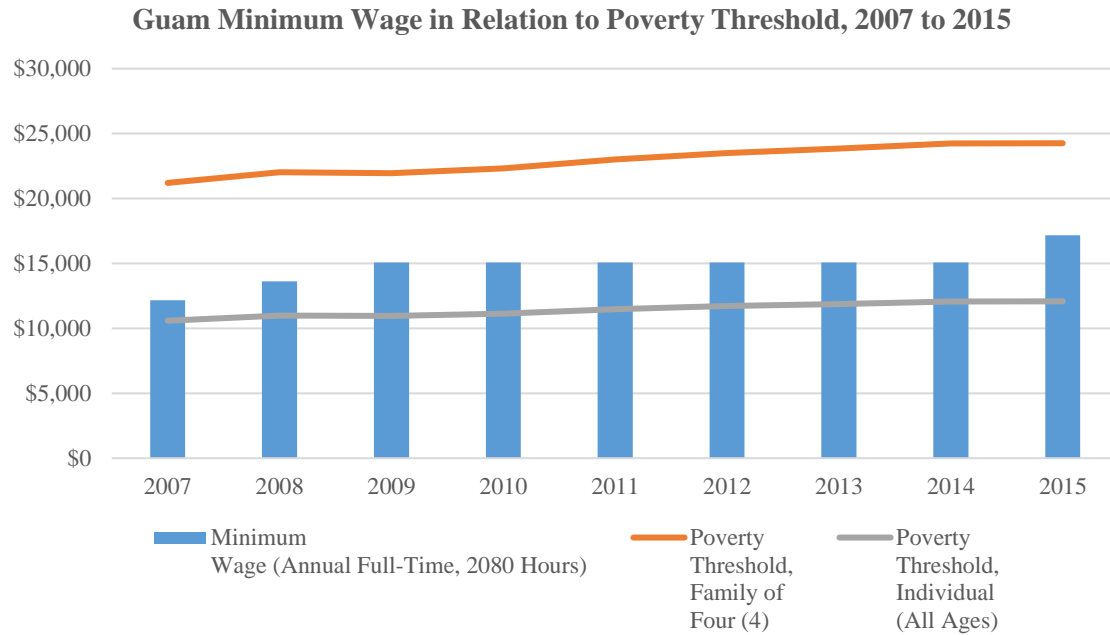
**CHART 1. U.S. MINIMUM WAGE AND U.S. CPI**



Source: Economic Policy Institute analysis of the Fair Labor Standards Act and amendments. Total economy productivity data from the Bureau of Labor Statistics Labor Productivity and Costs program. Average hourly wages of production nonsupervisory workers from the Bureau of Labor Statistics Current Employment Statistics.

At \$8.25 per hour, Guam's minimum wage is higher than the federal standard. Federal poverty guidelines for public assistance programs remain the same. As Chart 3 indicates, Guam minimum wages are higher than those of Chart 2. Guam households with higher annual incomes would continue to qualify for federal assistance programs. Full-time individual minimum wage earners exceed the threshold by a greater amount.



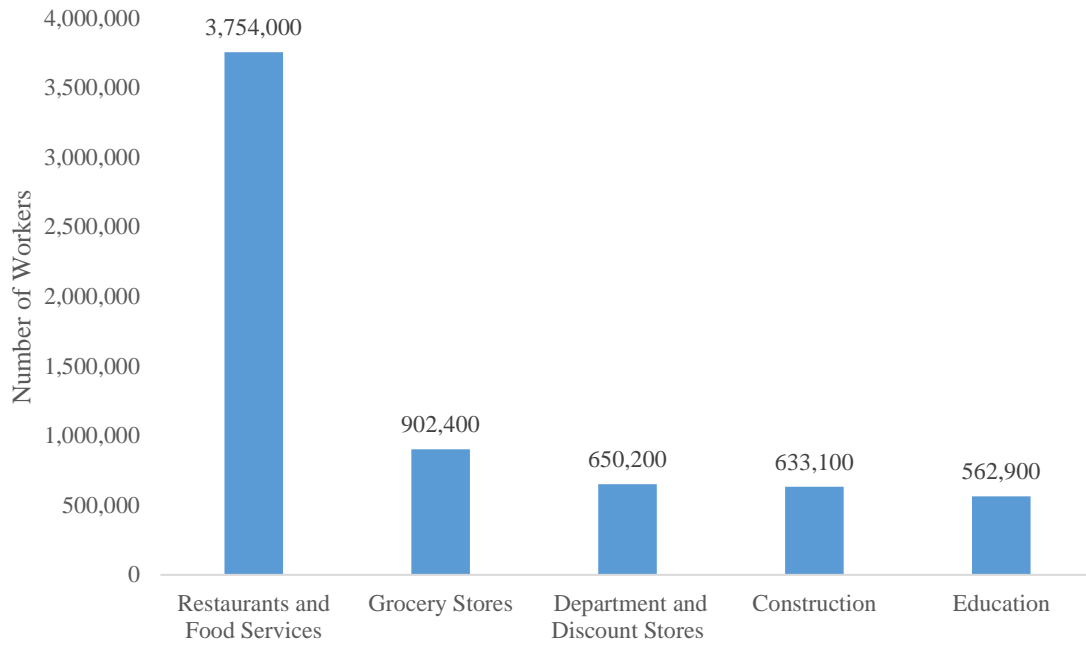
**CHART 2. GUAM MINIMUM WAGE IN RELATION TO POVERTY THRESHOLD**

*Source: Economic Policy Institute analysis of the Fair Labor Standards Act and amendments. Total economy productivity data from the Bureau of Labor Statistics Labor Productivity and Costs program. Average hourly wages of production nonsupervisory workers from the Bureau of Labor Statistics Current Employment Statistics.*

The U.S. Census gathers household and individual employment data through its population surveys. IPUMS-CPS is an integrated public use microdata series which links sets of data from the Current Population Survey (CPS). The monthly survey is conducted jointly by the U.S. Census Bureau and the Bureau of Labor Statistics. The survey was initially designed to measure unemployment and has maintained a data collection for trend analyses from 1962. Chart 3 profiles the Pew Research Study of minimum wage industries. These data were compiled using the IPUMS-CPS collection. This information comes from U.S. data with relevance to Guam. Given the prominence of Guam's tourism industry the profile is similar to that found on Guam. Guam OES data show the distribution of industries that employ the most near-minimum wage jobs in Chart 3.

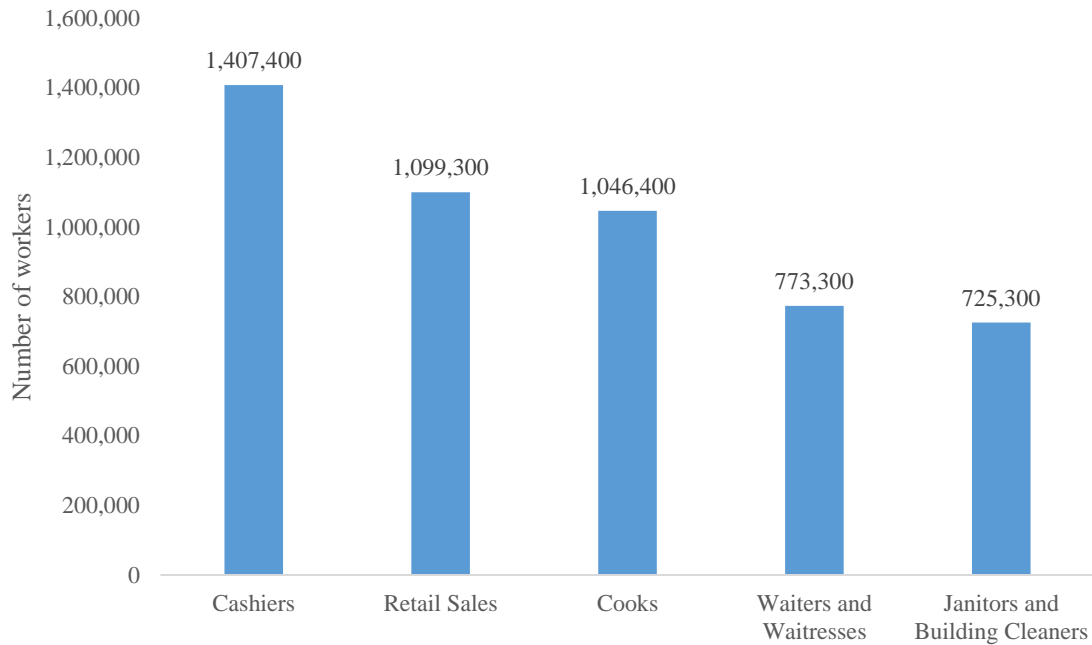
While Chart 3 shows the industries, which employ the most near-minimum wage jobs, Chart 4 shows what jobs near-minimum wage workers hold. The data in Chart 4 reflect the dominance of Restaurant and Food Services industries shown in Chart 3. There is a close relationship to what is expected on Guam given its tourism industry. There are some differences however, with more workers performing in jobs related to health and educational support services and in leisure services related to tourism. Chart 3 shows Guam's profile of jobs most near-minimum wage workers hold.

**CHART 3. U.S. INDUSTRIES THAT EMPLOY THE MOST NEAR-MINIMUM WAGE WORKERS:**



Source: Pew Research Center estimates based on 2013 IPUMS-CPS microdata

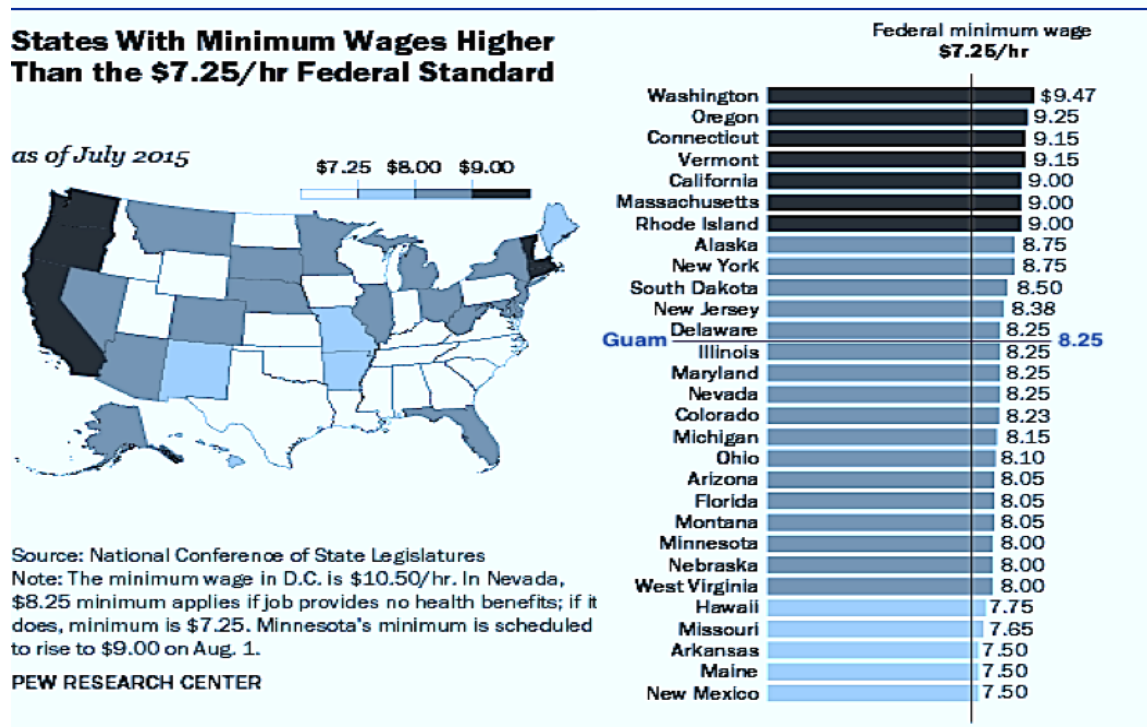
**CHART 4. U.S. MOST COMMON NEAR-MINIMUM WAGE OCCUPATIONS**



Source: Pew Research Center estimates based on 2013 IPUMS-CPS microdata

Regional differences are evident from these studies of what near-minimum wage workers do and where they work. The 2014 Characteristics of Minimum Wage Workers also notes differences among the resident states of hourly paid workers. Those living in higher cost of living states, Alaska, California, Oregon, and Washington were among those with the lowest percentages of hourly paid workers earning more than the federal minimum wage. States with minimum wages higher than the \$7.25 hourly federal standard are listed in Chart 5. Guam has taken similar steps by passing PL 32-229 to increase the island's hourly minimum wage from \$7.25 to \$8.25 in January 2015. Its ranking has been added to Chart 5 for comparison with others that have higher than federal minimum wage standard.

**CHART 5. STATES WITH MINIMUM WAGE HIGHER THAN THE \$7.25/HR. FEDERAL STANDARD**



Source: Pew Research Center, 2015

From Chart 5, with the addition of Guam to the list, Guam's minimum wage is in line with higher cost of living states. Cost of living estimates for these states range from 103 (Nevada) to 136 (California). With 100 being the baseline index, these numbers indicate above or the percentage above the index. The state with the highest cost of living in Q3 2016 was Hawaii at 168. Guam's CPI for this period was 123, comparable to Rhode Island at 121 and Maryland at 125.

These states tend to have higher GDPs and GDP per capita as reported by the U.S. Bureau of Economic Analysis for 2015 (Guam data 2014) in Table 1. States with Minimum Wage higher than the \$7.25/hr. Federal Standard by per Capita GDP 2015. The significance of this is economic

productivity, the dollar value of all goods and services produced in 2015. Guam's GDP was reported as \$5.7 billion in 2015. Guam's per capita GDP in 2014 as shown in Table 1 is \$31,809, (2015 estimate \$34,545). Guam's placement among states with above the federal minimum wage rates and among states with higher GDP per capita places the island economy among the highest costs of living in the nation with the lowest GDP per capita.

**TABLE 1. STATES WITH MINIMUM WAGE HIGHER THAN THE \$7.25/HR. FEDERAL STANDARD BY PER CAPITA GDP 2015**

Alaska	\$66,835
Massachusetts	64,017
Delaware	63,783
New York	63,390
Connecticut	62,800
California	56,851
New Jersey	56,663
Washington	55,577
Maryland	54,626
Illinois	53,669
Oregon	50,009
South Dakota	47,785
Rhode Island	47,413
Nevada	43,126
Vermont	43,122
Guam*	31,809

Source: U.S. Bureau of Economic Analysis 2015 and 2014\*

This collection of data indicators serves as background for a look at how Guam's economy has been faring relative to national data indicators. The following section profiles in more detail Guam's economy relative to the minimum wage discussion of whether an increase to \$8.25 per hour has had an impact.

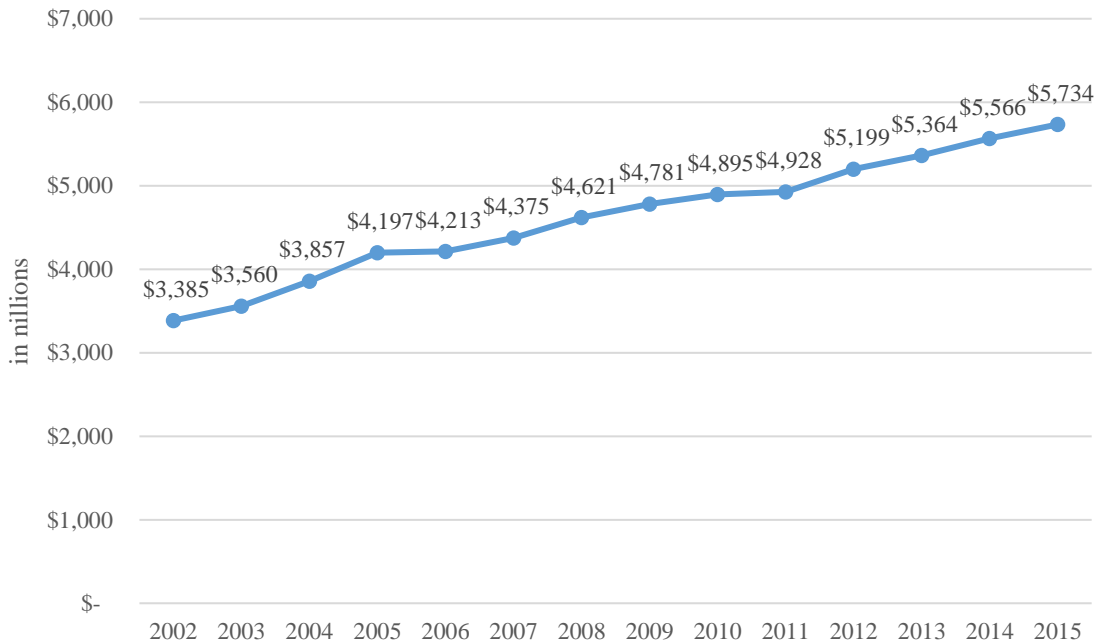
#### **A. Guam's Economy in 2015 – Review of Leading Indicators**

To consider how an increase in Guam's minimum wage affected its economy, the following macroeconomic indicators are presented and discussed. The selection of these indicators has been noted as important contributors to the assessment of minimum wage impact. Taken together these indicators frame a portrait of Guam's economy, its productivity, workforce participation, wage rate trends, and business growth. As minimum wage levels are targeted supports to low-income workers, other contextual data are included, specifically impacts on government assistance program enrollments. The goal is to assess macroeconomic impact from changes in Guam's leading economic indicators for 2015, the year in which the minimum wage increase became law.

## B. Guam's GDP Increased to \$5.7B in 2015 — A Growth Outlook

The US Bureau of Economic Analysis reports Guam's GDP in 2015 as \$5.7 billion - an increase from its reported GDP in 2014 at \$5.6 billion. Bank of Guam Chief Economist, Joseph Bradley in his January 2016 presentation attributes this growth to increased numbers of visitor arrivals, tourist spending, and infrastructure investments by the U.S. government to support the military build-up. Presentations by Guam Economic Development Authority in November 2016 confirm that Guam's economy is in an expansionary phase with reported GDP in 2015 at \$5.7 billion. In theory, employment growth and wage increases are expected as economies expand. Guam's minimum wage increase in 2015 is likely not a significant factor in GDP growth, but rather characteristic of the island's economic expansion and legislative policy action to keep wages in line with expected inflation, also characteristic in periods of economic growth. Bradley forecasts a 3 to 4 percent rise in GDP. Chart 6 shows the trend in the island's nominal GDP from 2002 to 2015.

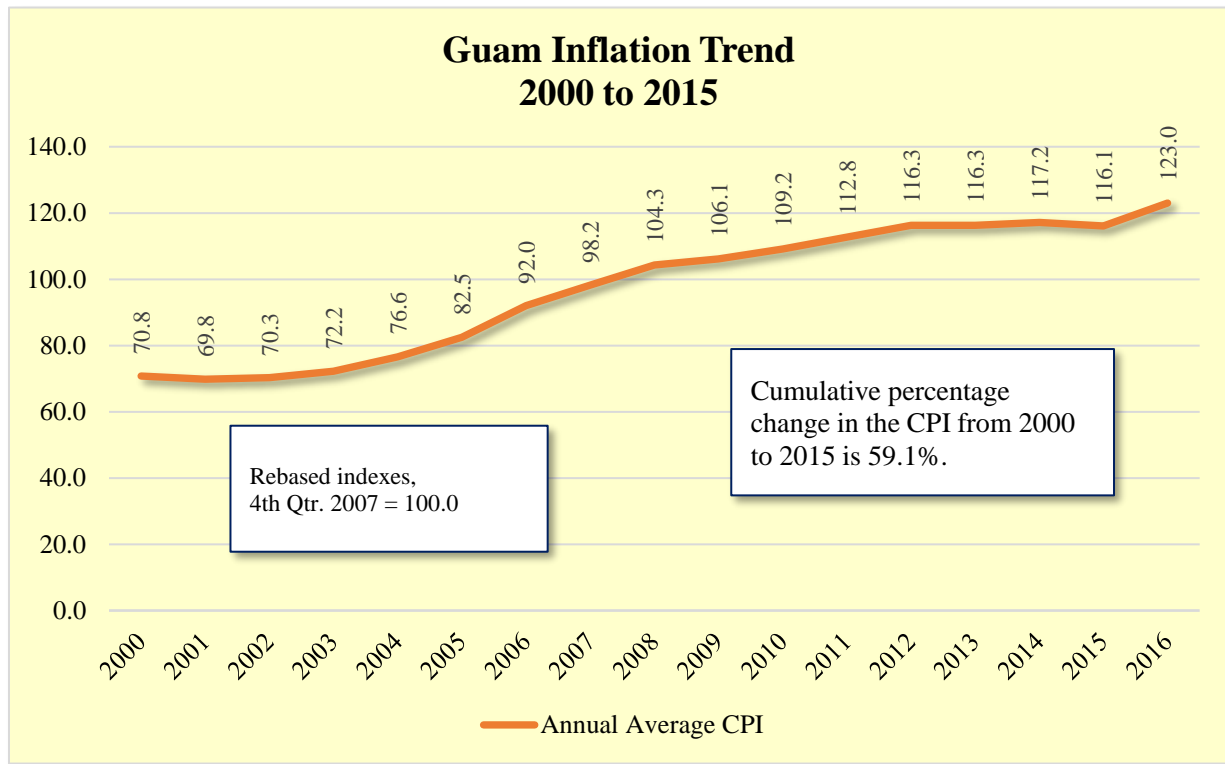
**CHART 6. GUAM GDP IN MILLIONS, 2002-2015**



Source: Bureau of Economic Analysis BEA 15-59

### C. Guam's Inflation Rate Declined Slightly in 2015; Rising in 2016

**CHART 7. GUAM INFLATION TREND 2000-2016; CONSUMER PRICE INDEX**



Source: Cost of Living Section, Business and Economic Statistics Program, Bureau of Statistics and Plans, Government of Guam, 4th Quarter 2016, Cost of Living Section, VOL. XLII No. 4

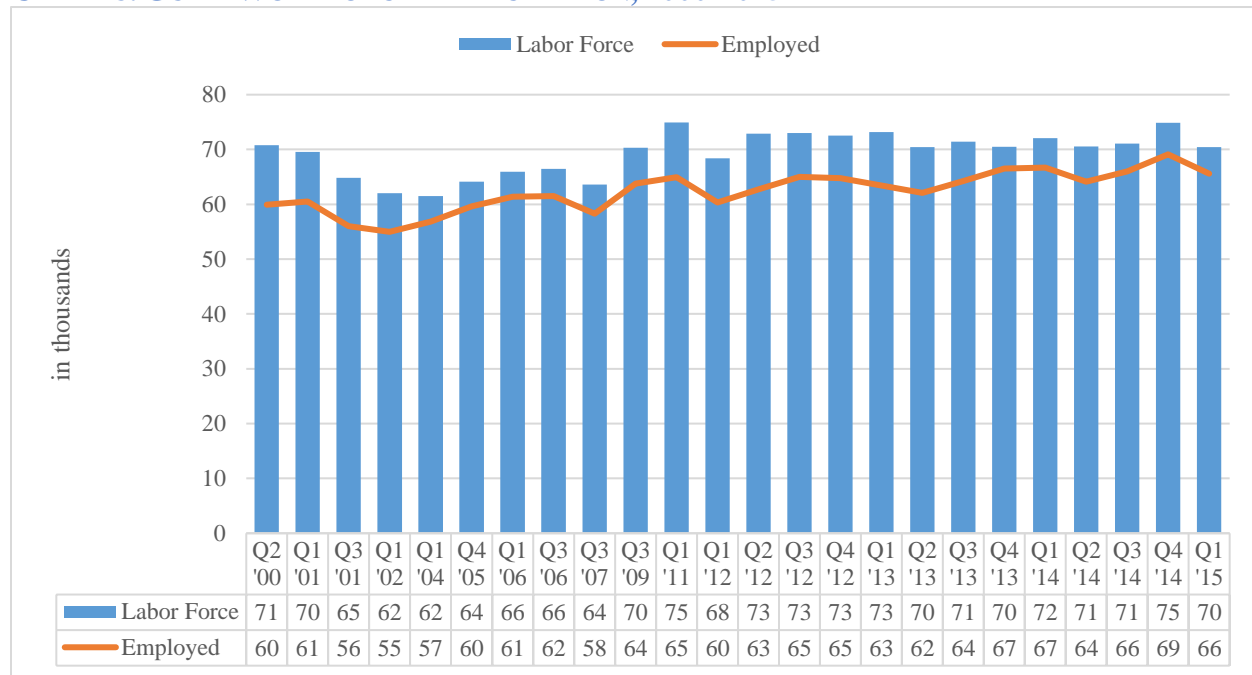
Guam's Consumer Price Index shows a cumulative increase of 59 percent since 2000. The index is rebased on 2007 to show significant economic changes attributed to the U.S. financial crisis. The prices of items in the Guam CPI were 16 percent higher in 2015 than they were in 2007. Some argue that with higher prices in the CPI, wage rate adjustments should keep pace. With regard to 2015, the decline in gasoline prices is a factor in the slight decline in CPI. With recent increases, 2016 is showing an upward adjustment. Guam households likely find that prices of goods and services on Guam are higher than in other locations. It is important to note that an increase in CPI affects businesses as well. The cost of inventory will likely increase along with costs of labor under conditions of minimum wage increases.

### D. Guam's Workforce Increased by 2.20 percent in 2015 — Private Sector Increased by 2.6 percent.

Minimum wage studies consider data sets pertaining to the overall workforce, its availability and compatibility with the type of work needed for available jobs, sectors in which the workforce is employed, and the educational levels and skills of the workforce, among others. One indicator of

impact is whether jobs were affected. Did employment levels decline; if they did among what groups of workers, in which sectors. Chart 8 shows that Guam's workforce participation rate declined in Q1 of 2015. This may be attributable to seasonal adjustments in workforce participation rates following Q4 2014 business volume. The pattern of Guam's workforce participation appears inconsistent with not all quarters available over the past 15 years. The period following 2001 is the exception but attributable to the 9/11 terrorist attacks and the downturn in tourism. Employment levels in Chart 8 show less than full employment, which supports the potential for business expansion and economic growth. Guam's recent unemployment rate fell below 7 percent in 2015, but so too has the labor force participation rate from the year prior.

**CHART 8. GUAM WORKFORCE PARTICIPATION, 2000-2015**



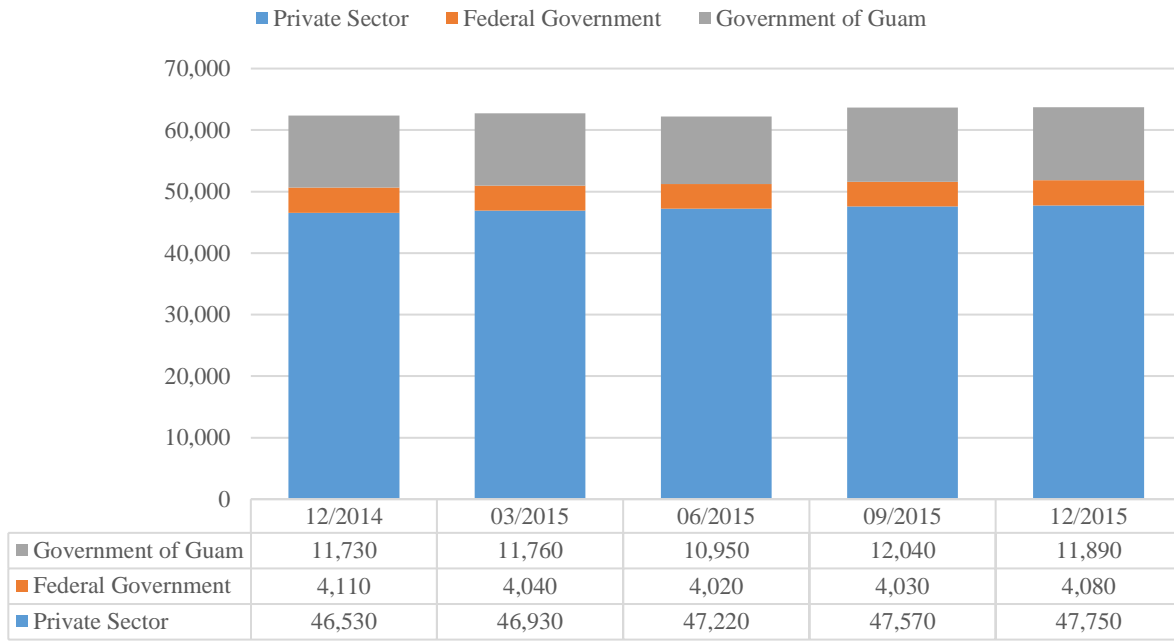
SOURCE: COST OF LIVING SECTION, BUSINESS AND ECONOMIC STATISTICS PROGRAM, BUREAU OF STATISTICS AND PLANS, GOVERNMENT OF GUAM, 4TH QUARTER 2016, COST OF LIVING SECTION, VOL. XLII No. 4

The number of private sector jobs increased by 2.6 percent in 2015. In the same year, federal employment levels declined, and number of Government of Guam jobs increased by 1.2 percent. New market entrants in the tourism industry and increased tourism arrivals likely boosted the increase in private sector jobs. The other sectors were relatively stable in 2015 with slight adjustments in employment levels. Increases in the minimum wage had greater impacts on the private sector as jobs below \$8.25 were more prevalent in the private sector than in government. With the increase in the wage rate, no private sector job declines are evident from these data. What



is not reported are job growth forecasts and whether these forecasts met expected levels following implementation of the minimum wage increase.

**CHART 9. GUAM EMPLOYMENT BY SECTOR — PRIVATE SECTOR JOBS INCREASED IN 2015**



**SOURCE: COST OF LIVING SECTION, BUSINESS AND ECONOMIC STATISTICS PROGRAM, BUREAU OF STATISTICS AND PLANS, GOVERNMENT OF GUAM, 4TH QUARTER 2016, COST OF LIVING SECTION, VOL. XLII No. 4**

## V. THE STUDY OF MINIMUM WAGE IMPACT — GUAM

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This study was designed to examine economic impact of a minimum hourly wage increase on Guam from \$7.25 to \$8.25 in January 2015. The study's scope examines demonstrated effects on Guam's households and businesses with minimum wage earners. Both primary and secondary data collections were used for this purpose. Four hundred eighty interviews of Guam businesses and households were conducted in Fall 2016. The study design is based on research from other communities about economic impact of a minimum wage increase with the assistance of the University of Washington. Some of this research provides the theoretical frame, while other applied research is used to support the design validity of the household and business surveys. The survey research derives from work conducted by the University of Washington to understand minimum wage impact of public laws in Seattle and Chicago.

### A. Study Design

The study design relies on primary data collection via survey of 355 households and 125 business firms who have minimum wage earners during 2015. The survey design was developed from the University of Washington Seattle Minimum Wage study and modified for Guam. Of the 480 household and business interviews, 50 were conducted qualitative interviews. In this way, the survey captures both scale and scope impacts of minimum wage increase.

Secondary data were used to characterize the economic condition of Guam at the time of the minimum wage increase. The secondary data collection is indexed by source to include information on Guam's Gross Domestic Product, Consumer Price Index, Labor Force Participation Rates, Employment by Sector, Unemployment. The data collection also includes data from U.S. indices pertaining to minimum wage impacts and trends in the United States for comparative purposes.

The instruments used for the Guam Business Survey (GBS) and Guam Household Survey (GHS) met reliability and validity standards, and received approval from Institutional Review Boards affiliated with the University of Washington and the University of Guam.

### B. Research Questions

What effect has an hourly minimum wage increase from \$7.25 to \$8.25 had on minimum wage households and employers on Guam in 2015? What were the effects of the minimum wage increase on Guam's economy in 2015?

## C. Approach

### Macroeconomic Approach

To assess macroeconomic effects of a minimum wage increase, secondary data were assembled to provide a portrait of Guam's economy before and after implementation of PL32-178. Secondary data sources collected for this study are presented in Table 2: Secondary Data Index. In addition to data specific to Guam, the macroeconomic review included data from U.S. national sources and for states with similar changes to their minimum wage rates. These data collections form a basis for considering impact to Guam's economy given a change in the minimum wage in 2015. Most data sources pertain to 2015 or as otherwise indicated.

**TABLE 2. SECONDARY DATA INDEX**

<b>Title</b>	<b>Source</b>	<b>Purpose</b>
Guam OES 2015	U.S. Bureau of Labor Statistics	Macroeconomic Indicator/GBS Sampling Study
2010 Guam Census	U.S. Census Bureau	Macroeconomic Indicator/GHS Sampling Study
Guam's Economic Indicators	Guam Department of Labor	Macroeconomic Indicator/GHS Sampling Study
FHB's Economic Forecast 2015	First Hawaiian Bank	Macroeconomic Indicator/GHS Sampling Study
Bill 316.32 Fiscal Notes	33 <sup>rd</sup> Guam Legislature	Macroeconomic Indicator/GHS Sampling Study
2010 Guam Census	U.S. Census Bureau	Macroeconomic Indicator/GHS Sampling Study
Current Employment Report 2015	Guam Department of Labor	Macroeconomic Indicator/GHS
Register of Wage Determination Under the Services Contract Act 2016	U.S. Department of Labor Employment Standards Administration	Macroeconomic Indicator/Wage
The Federal Minimum Wage in Brief 2015	Congressional Research Service	Macroeconomic Overview
Inflation and the Real Minimum Wage Fact Sheet 2014	Congressional Research Service	Macroeconomic Overview
Federal Minimum Wage Rates Under the Fair Labor Standards Act	U.S. Department of Labor	Macroeconomic Data

<b>Wage Rigidity Meter</b>	Federal Reserve Bank of San Francisco	Macroeconomic Data/Indicator
<b>Minimum Wage Impact Estimates 2016</b>	Guam Department of Labor	Macroeconomic Estimates
<b>Guam Long Term Industry Projections (2012-2022)</b>	Guam Department of Labor	Macroeconomic Projections
<b>Economic Outlook for Guam 2015, 2016 2017</b>	Guam Bureau of Statistics and Plans Guam Department of Labor	Macroeconomic Overview
<b>US Industries with Most Near-Minimum Wage Workers</b>	Pew Research Center, IPUMS-CPS Micro-data	Macroeconomic Sampling Study
<b>Guam GDP 2002-2015</b>	Bureau of Economic Analysis	Macroeconomic Indicator
<b>Cost of Living (Guam)</b>	Business and Economic Statistics Program, Bureau of Statistics and Plans	Macroeconomic Indicator
<b>Workforce Participation 2000-2015 (Guam)</b>	Bureau of Economic Analysis	Macroeconomic Indicator
<b>National Conference of State Legislatures</b>	Pew Research Center	Macroeconomic Overview of Minimum Wage Distribution

### Microeconomic Approach

Survey instruments were designed to understand the direct effects that the wage increase had on changes in household or business behaviors. Four hundred eighty interviews were conducted (125 business surveys; 355 household surveys). Of these surveys 50 (25/household, 25/business) were conducted as one-on-one interviews to understand in more detail the scale and scope of any changes to households and business firms. The surveys are differentiated as Quantitative (the 430 phone interviews) and Qualitative (the 50 personal interviews).

The tables in Appendix 2a and 2b show the variables included in the household and business surveys. The selection of the variable and the pilot testing of the questions to assess them, are included in Appendix 1: Technical Notes.

With the variables specified, the next step identified a representative sample of businesses and households to participate in the survey. Sampling frames were developed with minimum wage as a primary criterion. Firms participating in the business survey would include those that employ minimum wage workers, and eligible households would have at least one minimum wage earner in 2015.

The GBS sampling frame was constructed from two main data sources — the Guam Occupational Employment Survey (OES) and Guam Business License Registries (general business, contractors, and public health). Both sources contained information about businesses on Guam in 2015. The Guam business license data qualified the business for the sample and provided information for sample weighting. Guam businesses are licensed in three main categories of interest to this study: service (60%), retail (30%), and wholesale (10%). The Guam OES provided guidance on low wage occupations and the industry sectors that employ low-wage workers; the Guam business license registries assured that the study was sampling businesses licensed for business in 2015. The business license registry was used to define a sampling strata to be proportionally representative of business type (sole, partnership, corporations) and sector (retail, wholesale, service).

## D. Analysis

### *Microeconomic Analytics*

The following sections present the survey results for businesses followed by the survey results for households. Each section begins with an overview of the research program and details pertaining to the survey design and sampling protocol. The findings are then presented by major categories defined by the survey variables. Detailed information about the survey design and instrumentation is presented in Technical Notes in the Appendix 1 of this report.

## VI. PRINCIPAL FINDINGS: GUAM BUSINESS SURVEY (GBS)

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### A. Summary

The Guam Business Survey (GBS) was conducted between November and December 2016 to provide descriptive information about the increase in hourly minimum wage from \$7.25 to \$8.25 in January 2015 as it affected firms employing minimum wage workers. The Survey was conducted in two formats, Guam Business Survey—Quantitative and the Guam Business Survey—Qualitative. Both business survey components collected information about business models, employment practices, and finances at the time of the 2015 minimum wage increase. The surveys also collected information about initial responses to the increase, and self-reported plans for how firms may respond to future increases. All findings from self-reported plans for future increases are included as an addendum.

Subsequent surveys can collect similar information from the same set of employers to investigate how increased minimum wages are affecting employers over time. While these surveys provide insight into employers' beliefs about how wage increases are affecting their business, there is inevitable recall bias in reporting given the minimum wage increase of study occurred in 2015. Therefore, in addition to these surveys, the Guam Minimum Wage Study has examined employment records and census data to triangulate employer reports about changes in employment and profitability.

### B. About the GBS Surveys

The survey instruments used in the Guam study were drawn from surveys designed, pilot tested, and used by researchers at the University of Washington for an economic impact study of an increase in minimum wage rates in Seattle. Working with UW researchers, the Guam research team modified the survey to adjust for local differences. For example, the Seattle survey referenced counties. This term was replaced with villages. References to such elements as unemployment insurance were removed because they are not applicable on Guam. The major variables, however, were essentially similar.

The GBS-Quantitative sample was drawn from a random selection of firms holding active business licenses on Guam in 2015. There were three sources for this pool: 1) Guam Department of Revenue and Taxation, 2) Business Licensing Branch, Guam Contractors Licensing Board, and, 3) Department of Public Health Child Care/Day Care Licenses. The licenses were categorized by business sector (retail, wholesale, service, peddler, vending and others) and by business type (sole proprietorship, partnership, limited liability corporation, corporation, and foreign). The General Business License data set was quite large due to multiple licenses issued to the same firm for separate business activities such as cigarettes, liquor, and vending machine sales. Some firms had

multiple locations, with business licenses for each. As the goal was to build the pool of eligible business firms, the research team reviewed the active data sets to include the name of the firm only once and to include businesses with a higher probability of multiple workers. A conservative protocol was designed to eliminate over-sampling of firms with 1) multiple entries of the same business license number 2) consulting licenses in which the name of the firm was the same as the owner, and 3) business activity identified as peddling. The total number of eligible businesses from all three licensing sources was 7,677. The list was then stratified by business sector and business type. A random sample of 2500 businesses was identified for the quantitative survey to select 100 business firms. Data in this report are based on unweighted survey responses, meaning that every survey response is counted equally.

The surveys occurred in two steps: first, a brief screening survey was completed to determine whether an employer currently had workers earning less than \$10.10 an hour. Next, a detailed survey about business practices was completed with employers who were determined eligible in the screener.

### C. Guam Business Survey: Initial Findings

#### Demographics

Businesses that participated in this study reflect a wide range of sectors and sizes. Business interviews were intentionally done within the sectors of retail, food and accommodation, and other services where it is general knowledge that the largest majority of low-wage workers are employed. Examples of firm types from interviews include: a bakery, child care services, sporting goods store, plumbing services, pest control, a gym, telecom services, a clinic, hotel, and other food services. Most businesses interviewed and surveyed have only one single business location on Guam. About a third of businesses have multiple locations on Guam—these businesses include food services, auto parts and rentals, and various retail stores.

The employer survey respondents mirrored the wide variety of firms interviewed, with most firms with low-wage workers working in retail trade or accommodation and food services. See Table 3 below.

**TABLE 3. INDUSTRIES SURVEYED, GBS QUANTITATIVE**

Industry name from business license	Freq.	Percent
<b>Retail Trade</b>	26	26%
<b>Accommodation, Food Services</b>	18	18%
<b>Educational Services</b>	9	9%
<b>Health Care, Social Assistance</b>	8	8%

<b>Professional, Science, Technical Services</b>	7	7%
<b>Construction</b>	5	5%
<b>Wholesale Trade</b>	5	5%
<b>Arts, Entertainment, Recreation</b>	4	4%
<b>Other Services (except Public Administration)</b>	4	4%
<b>Administration, Support, Waste Management</b>	3	3%
<b>Manufacturing</b>	2	2%
<b>Transportation, Warehousing</b>	2	2%
<b>Finance and Insurance</b>	2	2%
<b>Utilities</b>	1	1%
<b>Information</b>	1	1%
<b>Real Estate, Rental, Leasing</b>	1	1%
<b>Management of Companies and Enterprise Services</b>	1	1%
<i>Missing</i>	<i>1</i>	<i>1%</i>
<b>Total</b>	<b>100</b>	<b>100%</b>

Over 60% of all businesses interviewed and surveyed stated their firms are family-owned. The customer base of businesses was a good mixture between residents, tourists, and government agencies.

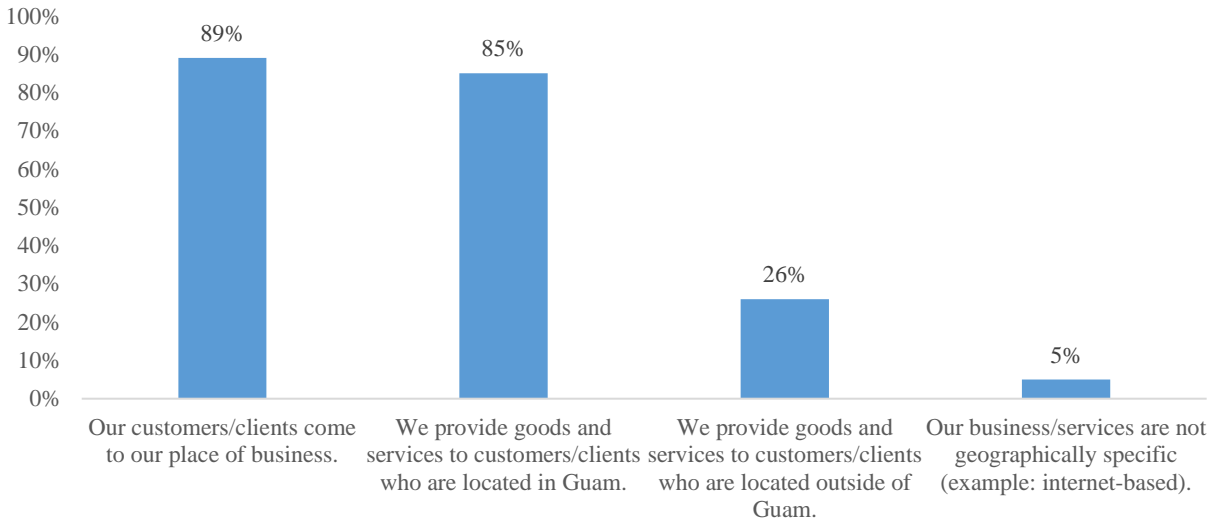
The quantitative survey asked businesses to describe the location of their customers. Most businesses have customers who live on Guam and go to their place of business. Only 26% of respondents said they provide goods or services to customers outside Guam. See Chart 10 below for more details.



**CHART 10. TYPE OF CUSTOMER/CLIENT BASE, BUSINESSES ON GUAM**

**"Which of the following describes the location of your firm's customers/clients?"**

*Among Guam businesses employing workers at \$10.10/hr or less, N=100*



*Source: Market Research & Development, Guam Business Quantitative Survey, 2017*

### Locations

Number of business locations ranged from 1 to 38, with many businesses having only 1 location. For the outlier business that has 38 locations, this business operated within public schools and therefore explains the multitude of sites. These findings were consistent with survey respondents as well, with 70% of businesses stating they have only 1 location, followed by 16% with 2 locations, and 7% with 3 locations. There were no firms with more than 7 locations in the employer survey.

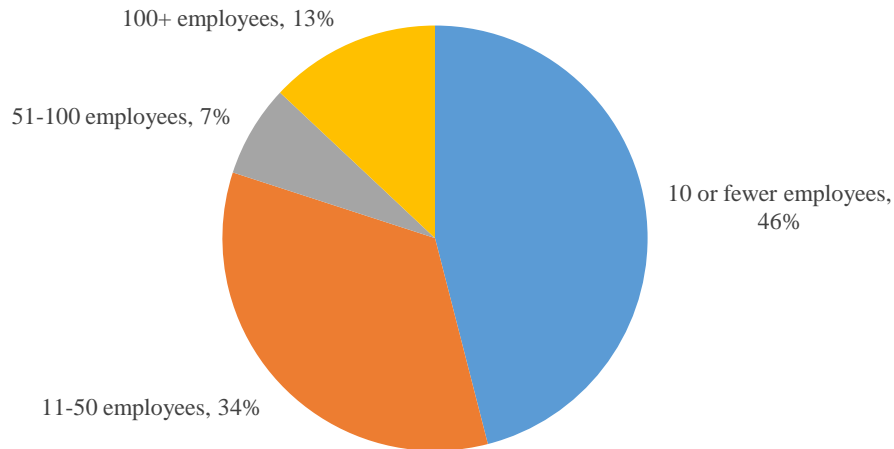
### Employees

Businesses participating in interviews and the survey ranged in size from very small (1 to 2 employees) to large (over 500 employees). Almost half of the full sample had 10 or fewer employees, followed by about a third of businesses employing between 11-50 employees. See Chart 11 below for details.

### CHART 11. NUMBER OF EMPLOYEES

**"Please give your best estimation of how many employees your firm had in Guam as of September 1, 2016."**

*Among Guam businesses employing workers at \$10.10/hr or less, N=100*



*Source: Market Research & Development, Guam Business Quantitative Survey, 2017*

When considering types of employees that worked at each business—such as high school graduates, college graduates, veterans, and seniors—there was also a good mix of employee type. The range of responses about employee type include high school graduates, college students, and veterans. One respondent described their employees as follows:

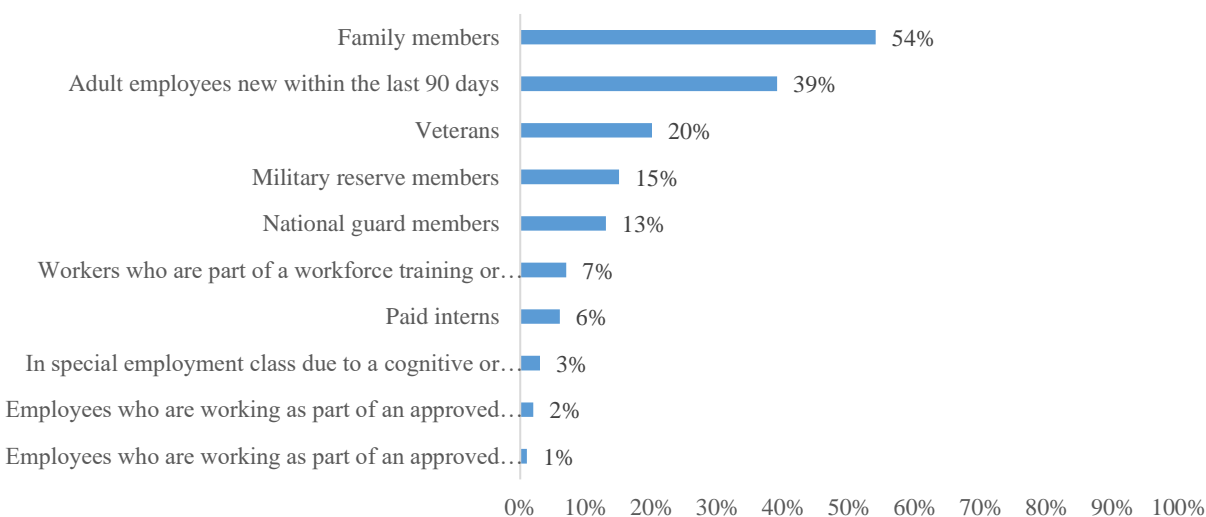
*“We have everything from our frontline employee can be made up of... it’s the gamut of all segments of society. All demographics, we have professionals, we have maybe those tied to the military who are looking to just supplement family income as part-time position, some of our frontline employees are the major bread winners of the family. As far as my management staff, we have professionals, college grad, to those that just have continued to expand their roles and responsibility through hard work and self-improvement.”*

In the survey, respondents were asked about employee characteristics such as whether family members worked at the establishment, or whether employees were part of military reserve or the National Guard. Over half of respondents stated employees are family members, and about 40 percent of respondents stated they had adult employees new within the last 3 months. See Chart 12 below for responses.

**CHART 12. TYPES OF EMPLOYEES**

**"Please indicate whether you have any employees with the following characteristics."**

*Among Guam businesses employing workers at \$10.10/hr or less, N=100*



*Source: Market Research & Development, Guam Business Quantitative Survey, 2017*

**Wages**

In the survey, employers were asked how many non-tipped employees were earning under \$8.25 per hour, between \$8.25 and \$8.99 per hour, between \$9.00 and \$9.99 per hour, and \$10.00 per hour or more. Nearly 50 percent of employees were reported earning less than \$10.00 per hour, while the other half of employees make over \$10 an hour. See Chart 13 below.

**CHART 13. NON-TIPPED EMPLOYEE WAGES**

**Thinking of the employees at your establishment, how many non-tipped employees are paid in the following pay ranges?**

*Among all employees of businesses employing workers at \$10.10 or less, N=2326*



*Source: Market Research & Development, Guam Business Quantitative Survey, 2017*

In the interviews, almost all employers stated they gave employees raises last year (18/25), mostly based on yearly performance evaluations. Raise amounts ranged from \$.50 to \$1.50 or more.

Combined, only 22 percent of firms reported having employees who earn tips in addition to their wages, and 12.5 percent reported employees who receive commissions. Survey respondents were asked if they employed H1 or H2 visa workers, but fewer than 10 percent of employers answered yes to this question.

In the interviews, employers brought up the high cost of living in Guam and often wished they could pay employees more, but feel limited in their ability to do so. Knowing the cost of hiring and training new employees is often high, employers stated they would do what they could to maintain employees as long as possible and reduce turnover. Unfortunately, for places like large hotels and restaurants, high turnover is often inevitable. Since these businesses recognize this inevitability, they do their best to incentivize and promote their best, most dedicated employees to retain them.

### Hiring and turnover

To assess how much turnover occurred within businesses in the last year, the survey asked businesses to report the number of employees hired, discharged, quit, laid off, and recalled from layoff in the last 12 months. In the last year, the average business hired or recalled from layoff

24% of employees. The average business had a total number of resignations, discharges, and layoffs of around 34%.

One employer in the qualitative interviews described their staffing levels as an internal business challenge stating:

*“Each site is dependent upon the business needs and the participation level of [the sites]. There've been times where we had to make adjustments to staffing levels because participation levels may drop off or they weren't what we expected them to. For example, had to downsize at [one site] because of the client not being able to ride the staff to support our operation from a requirement of their standpoint”*

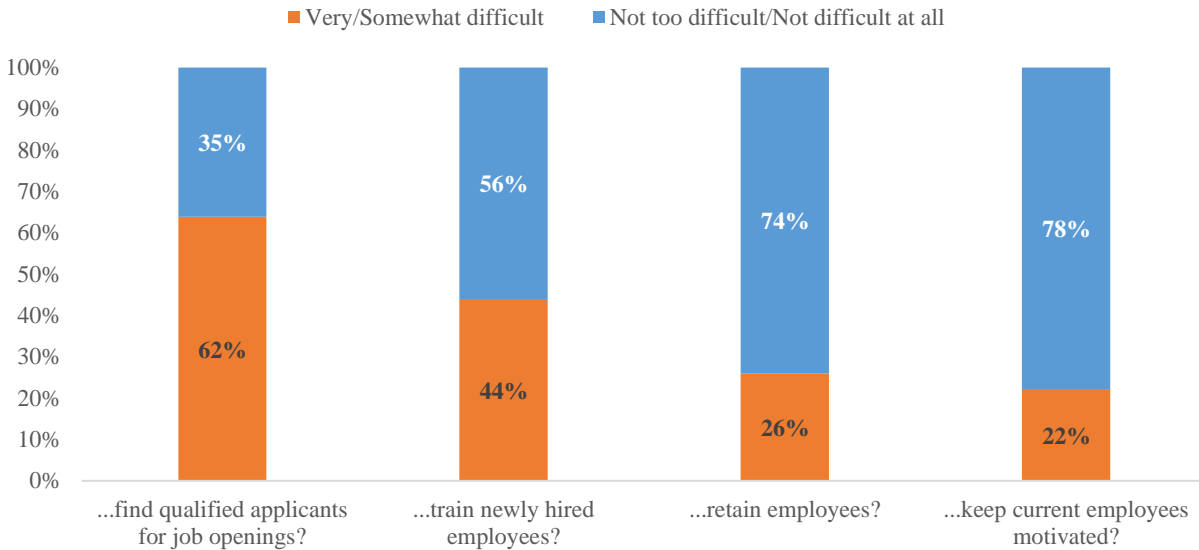
Interview participants were also asked if the business had made any changes to their hiring practices since the minimum wage increase in 2015, but the majority (21/25) of employers stated they did not.

In the survey, employers were asked about difficulty hiring and maintaining employees. Most respondents (62 percent) stated it was difficult to find qualified applicants for job openings, while it was not difficult to retain employees or keep current employees motivated. Some employers expect low-wage jobs will become more competitive and this will require employees to have more experience or training, but these opinions were not strongly shared across participants in this study.

## CHART 14. HIRING AND TRAINING DIFFICULTY

### How hard is it to...?

Among businesses employing workers at \$10.10 or less, N=100



Source: Market Research & Development, Guam Business Quantitative Survey, 2017

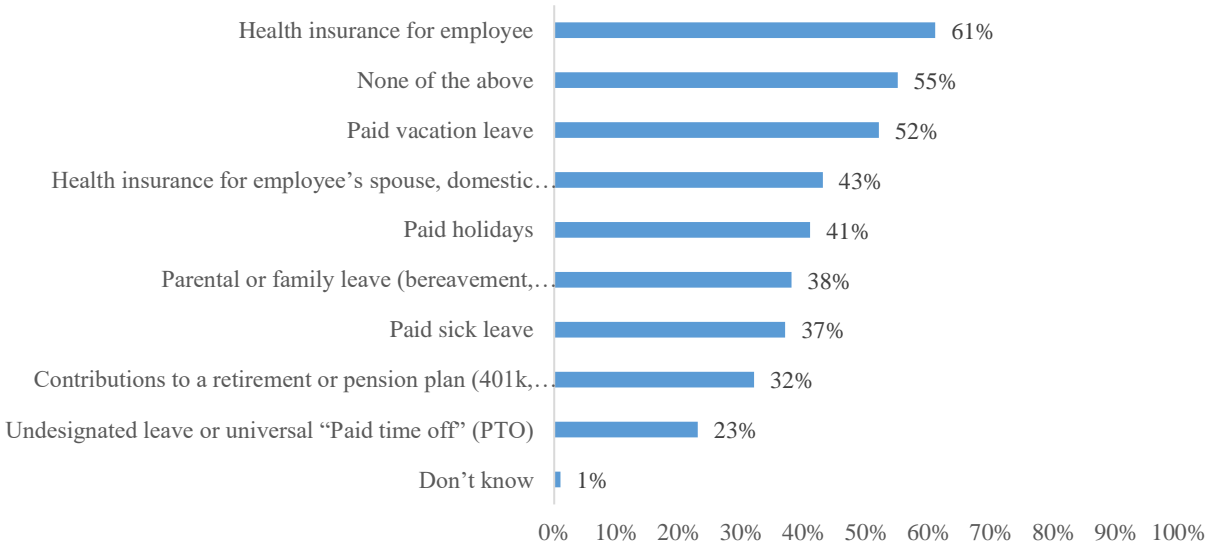
### Anticipated Changes in Hiring

Overall, employers cared about employees who had dedicated themselves to the business and were willing to work hard. Many employers stated they wanted to reward long-time employees and would put more energy into retaining those that have been committed to the business.

In the qualitative interviews, none of the businesses said they anticipate down-sizing in the next year, though a couple added that it depended on how the rest of the year went for them. When asked if businesses anticipate adding staff in the next year, 7 of the 25 businesses said yes and 6 of the 25 businesses say they anticipate adding additional positions in the next year.

### Benefits

The survey asked participants if they offered any of the following benefits to employees: health insurance for the employee; health insurance for the employee's spouse, domestic partner, or dependents; paid sick leave; paid vacation leave; paid holidays; undesignated leave or universal "paid time off" (PTO); parental or family leave (bereavement, maternity/paternity leave, parent/teacher conferences); or contributions to a retirement or pension plan (401k, 403b, etc.). Most survey respondents stated they offer some benefits to employees (70 percent). A little over 60 percent of employers offer health insurance for the employees, and just over half (52 percent) offer paid vacation leave. See Chart 15 for details.

**CHART 15. BENEFITS OFFERED BY GUAM EMPLOYERS****Which of the following benefits does your business offer to employees?***Among businesses employing workers at \$10.10 or less, N=100**Source: Market Research & Development, Guam Business Quantitative Survey, 2017*

These findings were consistent across business interviews as well. In the interviews, benefits were often stated as the way employers retain employees and remain competitive; therefore, benefits were stated as a very important aspect of hiring and employee retention. Additionally, only about a third of the businesses interviewed and surveyed offer benefits to part-time employees.

Only about a third (30 percent) of employers stated they do not offer any benefits to employees. When asked for reasons why benefits were not universally offered, one retailer's response was as follows:

*"No, benefits suck. Health insurance, firstly, we canceled – we couldn't afford it. They work full time to a point where we pay one week vacation. If they work two years, they get two weeks' pay vacation. Right now, we're trying to get – what is it? The Guam Chamber's – someone is offering a program but you have to join them – right now, we're working on that to join them to where they have some kind of coverage program to make it very reasonable. That's what I'm trying to join right now."*

### Profits and expenditures

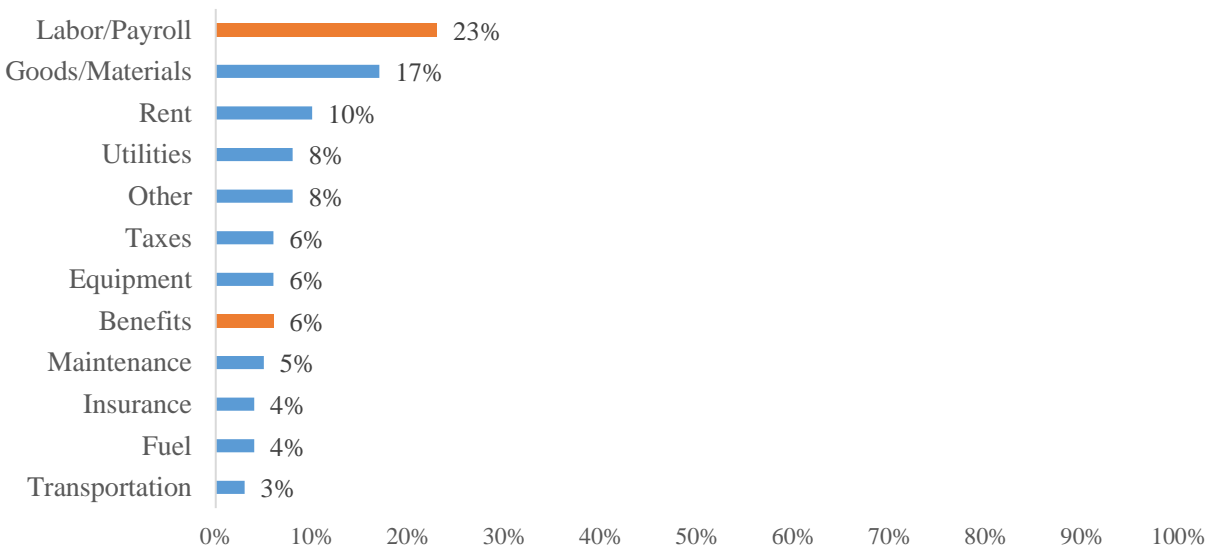
Business owners have a lot of expenses, including many they have little control over. The most common expenses mentioned include: payroll salaries and benefits, taxes, rent, materials, and equipment. The most common expenses employers feel like they have the least amount of control over are rent and payroll. As one interview respondent described, “We have less control in the fuel price because this is beyond our control...even if the pricing is depended on the fuel company.” Another described their lack of control over utilities, stating, “We cannot control the increase in the utilities company like the water, once there is an increase we cannot control that.”

In the interviews, 64 percent of employers stated their costs had increased in the last year, and 52 percent of employers in the survey stated their costs had increased in 2015. When asked how and why costs have changed in the last year, one respondent replied, “Because of demand needed to expand and make more purchase of goods/inventory,” while others said, “Fuel price increased,” and, “Everything has gone up.”

### CHART 16. MAJOR OPERATING EXPENSES, BUSINESSES ON GUAM

#### Major Operating Expenses

*Among businesses employing workers at \$10.10 or less, N=100*



*Source: Market Research & Development, Guam Business Quantitative Survey, 2017*

While businesses reported struggling to make ends meet, they had various methods of doing so. For example, a few businesses reported in interviews having added services and increasing the number and type of products or services offered. Other businesses reported holding back on giving raises, and a few businesses that have been on the island for a long time are remaining cautionary and positive while hoping their business profits increase. When asked how employers are planning



to deal with future cost increases, businesses had varied responses. One business owner said they plan to “decrease employee hours, take on-call instead of regular schedule” while another said they were “potentially increasing rates for products or reduction of workforce through increasing efficiencies, such as software generated solutions.”

While price increases are sometimes thought of as the simple reaction to rising expenditures, one respondent described them as follows:

*“You can’t – you can’t raise the prices because the consumer is super sensitive. We’re competing with internet which unfortunately, is here to stay... The only thing left is to, well my opinion is to get the guys more efficient so I can work more with less guys. But that’s where the problem comes in. Because then I need to find people that are a little more competent... But it gets back to the fact that this is a small business so it’s kind of like a rat race, running in circles. That’s probably the only thing I can think of right now. I mean, here I have 10 items and I’m crying because of inventory costs and the guy shows 100. I think the only thing is the service.”*

Another retailer also expanded on the difficulties of balancing raising prices with employee workload, stating:

*“It’s probably been squeezed – our sales have been about the same. We probably lost about 3 points. We’re kind of going to the Kmart style where its volume – we’ve definitely been a lot busier. The rub is we’re a lot busier, the guys have been getting worn out but the margin is thinner. But if we don’t lower the price, we lose our business. So if we lower our price, we got to do more to make up so instead of making a dollar, you’re making \$0.50.”*

When asked about changes in profits in the last one to five years, only about 20 percent of businesses stated an observed increase in profits. Around 17 percent reported a decrease in profits, and rest reported no significant change.

### Minimum Wage Increase 2015

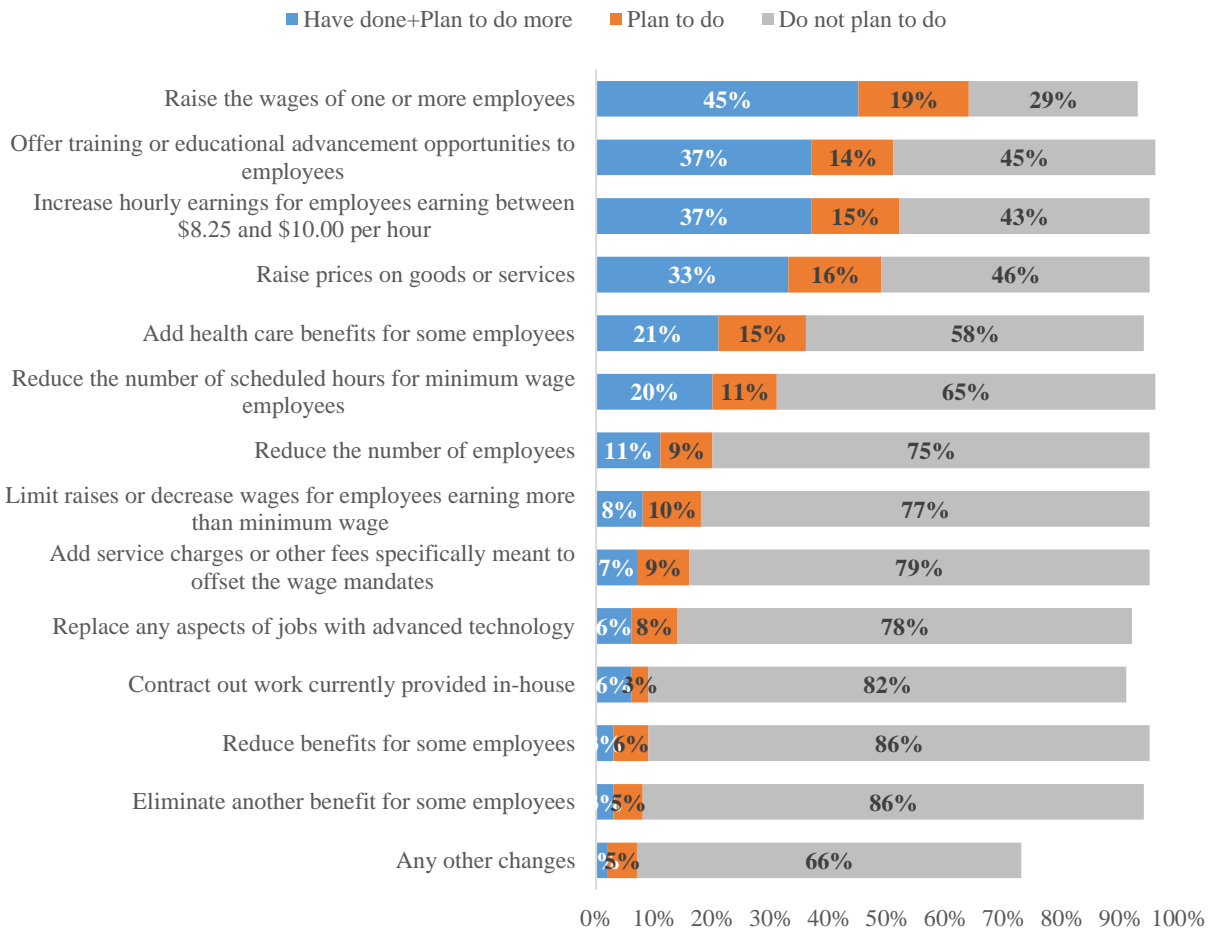
Reflecting on changes made since the minimum wage increase in 2015, survey participants were asked, “Have you made or do you intend to make any of the following changes to accommodate the minimum wage raise last year?” As shown below, most businesses did not make, nor plan to make, any major changes. The only outstanding change employers state they plan to make is

reducing benefits for employees (37 percent). Over a third of respondents raised prices for goods or services, increased hourly wages for employees making between \$8.25 and \$10 per hour, offer training or educational opportunities, and raised the wages for one or more employees.

#### CHART 17. CHANGES TO BUSINESS PRACTICES IN RESPONSE TO 2015 MINIMUM WAGE INCREASE

**Have you made or do you intend to make any of the following changes to accommodate the minimum wage raise last year?**

*Among businesses employing workers at \$10.10 or less, excluding those who "don't know", N=100*



Source: Market Research & Development, Guam Business Quantitative Survey, 2017

In the qualitative interviews, consistent with the survey, almost a third of businesses said they have increased prices of goods or services to keep up with wage increases. As one respondent described, “We have to include the increase in the minimum wage so whatever we expend on minimum wage... the impact of the minimum wage 2015 until now we were able to include that and bill that to our clients.”

Employers stated wage increases will potentially affect raises for employees making above the minimum wage already. One retailer described the 2015 wage increase and how it's affected their business as follows:

*“That first change didn’t really bother because back then we were already paying about the same wage. Yeah, the only thing, for example, I see a guy with a little bit of potential, as I mentioned earlier, there’s no incubation stage anymore. Right now, back in the old days, I give a guy 6 months to see if they can get their act together. Now, in a few weeks, if I sense that it’s not happening, I just tell them straight up, you should just quit. Because the cost of incubating that person right now, it raises quite a bit. I think that’s probably the only biggest thing that’s happened here. Again, no one on Guam can survive on minimum wage unless you’re shacking off your parents. My job is try to get them to where they actually – you ain’t going to be rich but at least you can make a living.”*

## VII. PRINCIPAL FINDINGS: GUAM HOUSEHOLD SURVEY (GHS)

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### A. Summary

The Guam Household Survey (GHS) was conducted between November and December 2016 to provide descriptive information about the increase in hourly minimum wage from \$7.25 to \$8.25 in January 2015 as it affected households with at least one minimum wage worker. The Survey was conducted in two formats — the Guam Household Survey—Quantitative and the Guam Household Survey—Qualitative. Both household survey components collected information about household demographics, employment, and household budgets at the time of the 2015 minimum wage increase. The surveys also collected information about initial household changes resulting from the 2015 wage increase, and self-reported plans for how households may respond to future increases. All findings from self-reported plans for future increases are included as an addendum.

Subsequent surveys can collect similar information from the same set of households to investigate how increased minimum wages are affecting households on Guam over time. While these surveys provide insight into household experiences about how wage increases are affecting their lives, there is inevitable recall bias in reporting given the minimum wage increase of study occurred in 2015. Prospective study of household responses is necessary to evaluate household change over time and better attribute causal change to wage increases.

### B. About the GHS Surveys

The GHS-Quantitative involved 330 households in structured telephone interviews to acquire descriptive data about the households and the actions taken following the minimum wage increase. The GHS-Qualitative was conducted as personal interviews with 25 members of low-wage households to acquire more in-depth information regarding impact and outlook. Both surveys were modified from the Seattle Minimum Wage Study and were reviewed and approved by Guam Department of Labor, and the University of Guam Institutional Review Board (IRB) prior to use. Descriptive findings are presented below, beginning with the results of the GHS-Quantitative.

The GHS-Quantitative surveys were approximately 15 minutes in length, and was fielded via CATI (Computer-Assisted Telephone Interviewing) using a landline telephone sample drawn from the most recent GTA phone listing. Random households were selected by the CATI system, but the specific respondent will be the “head of household” – or the person primarily in charge of paying the bills. Further, the household needed to have at least one person who was employed at a rate of \$10.10 or lower, and was contributing to the household expenses.

The sample size of N=330 was accurate to within  $\pm 3.5\%$  at the 95% confidence level; that is, if the survey were to be repeated 100 times, the probability is that 95 times out of a hundred, the results will not vary by more than  $\pm 3.5\%$ .

The surveys occurred in two steps: first, a brief screening survey was completed to determine whether households currently had any household members earning less than \$10.10 an hour. Next, a detailed survey about household demographics, job profiles and benefits, and opinions about how minimum wage increases affect their daily life was completed with households who were determined eligible in the screener. The survey took about 30-minutes to complete via phone or web. There were 330 completed surveys that fit this eligibility.

### C. Guam Household Survey: Initial Findings

For this part of the study, households completed a 30-minute survey via phone or web to discuss their household demographics, job profiles and benefits, and opinions about how minimum wage increases affect their daily life. To be eligible for the study, one or more household members that contribute to the monthly bills or expenses of the household must earn \$10 an hour or less. There were 330 completed surveys that fit this eligibility.

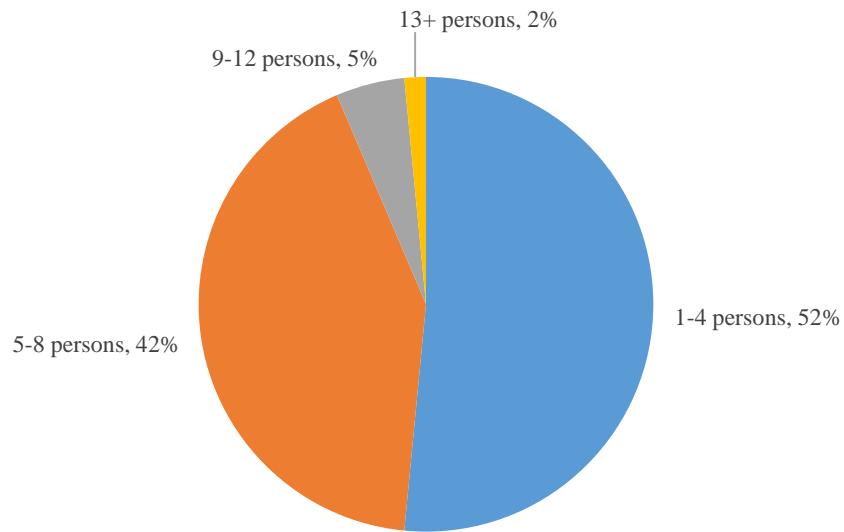
#### Household Demographics

Of the 330 households surveyed, an average of 4.8 people lived in each household, with a median of 4 people. Over half the sample (51.5 percent) lived in a household with 1-4 people (see Chart 18 below).

### CHART 18. NUMBER OF PEOPLE IN HOUSEHOLD, GHS

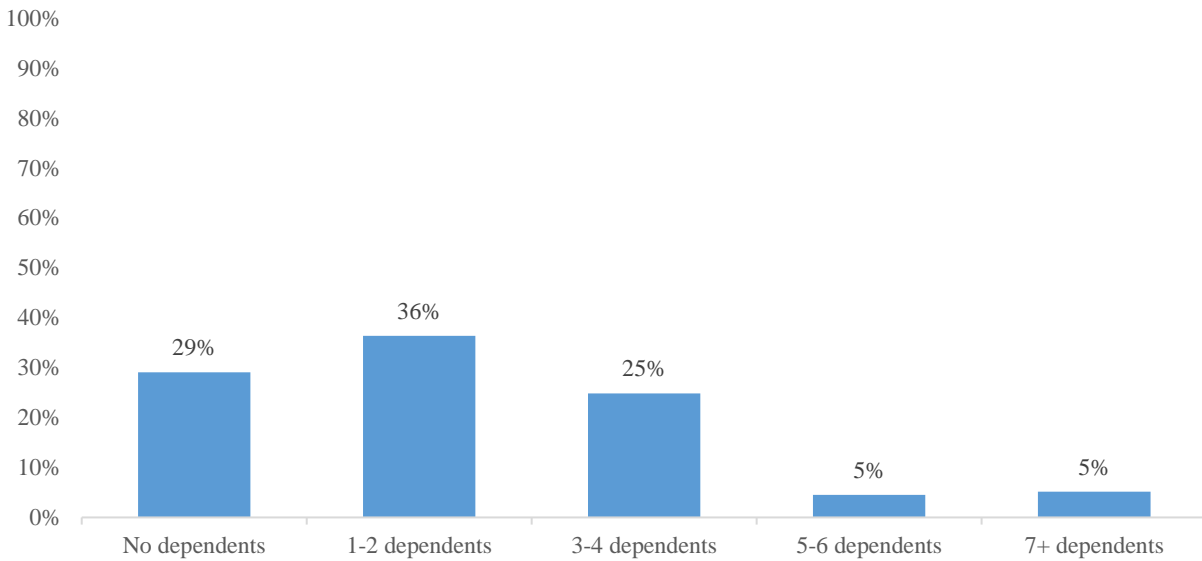
#### How many total people currently live in your home?

Among all respondents excluding don't know/refused, N=326



Source: Market Research & Development, Guam Household Quantitative Survey, 2017

Of these 330 households, 234 (70.9 percent) had dependents living at home. The number of dependents varied greatly, with the most common number of dependents as 1 to 2. These numbers are consistent with qualitative interviews conducted as well, with the majority of families (17/25) having 3 or less children in the home. See Chart 19 below for more details regarding dependents.

**CHART 19. NUMBER OF DEPENDENTS IN HOUSEHOLD, GHS****How many children or dependents currently live in your home?***Among all respondents excluding don't know/refused, N=326**Source: Market Research & Development, Guam Household Quantitative Survey, 2017*

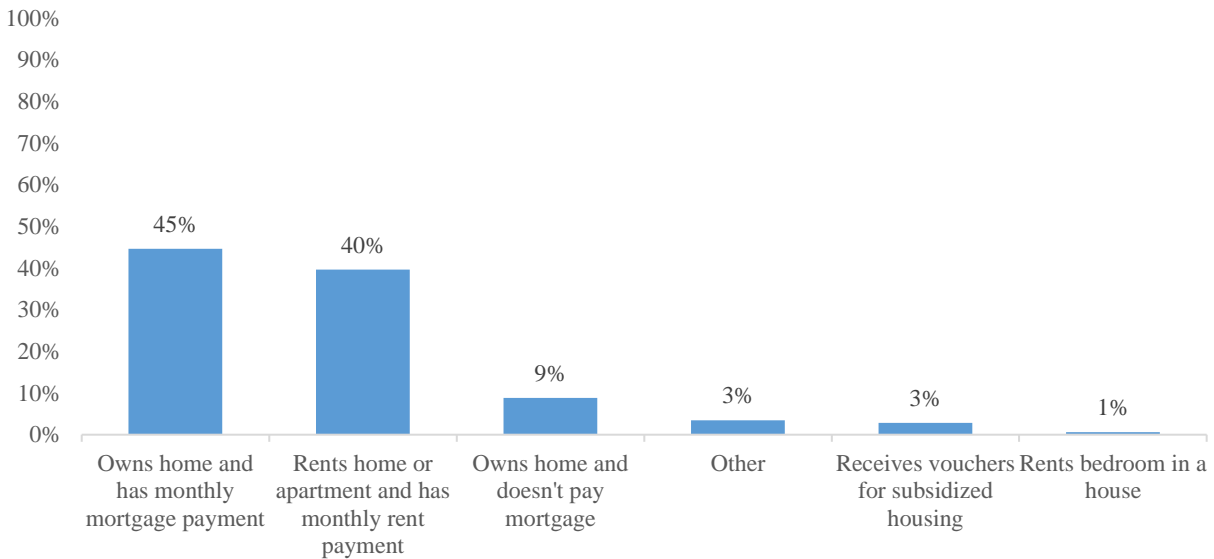
**Most households have a high school diploma.** About 88.5 percent of respondents stated they have a high school diploma, yet only about 22.4 percent of respondents stated they have a 4-year degree. Interestingly, when survey respondents were asked if anyone in their household had stopped going to college to work, over 40 percent (41.2) stated they or someone in their household had. Considering the population of the survey being minimum wage earners, this fact is not surprising but may lead to some insight into who these workers are. Education is one of the principal predictors of wage attainment.

**Most households rent or own their home.** Chart 20 gives details about the housing situations of survey respondents, showing many households either owning a home and paying a mortgage, or renting a home or apartment. Only 9 respondents (3 percent) live in subsidized housing. Of the respondents who replied “other” in this question, most indicated they were staying with other family members. Most respondents had lived on Guam for many years - and often, their whole lives. The average number of years on living on Guam was 9.89 years.

## CHART 20. HOUSING SITUATION

### Which of the following best describes your housing situation?

Among all respondents excluding don't know/refused, N=318



Source: Market Research & Development, Guam Household Quantitative Survey, 2017

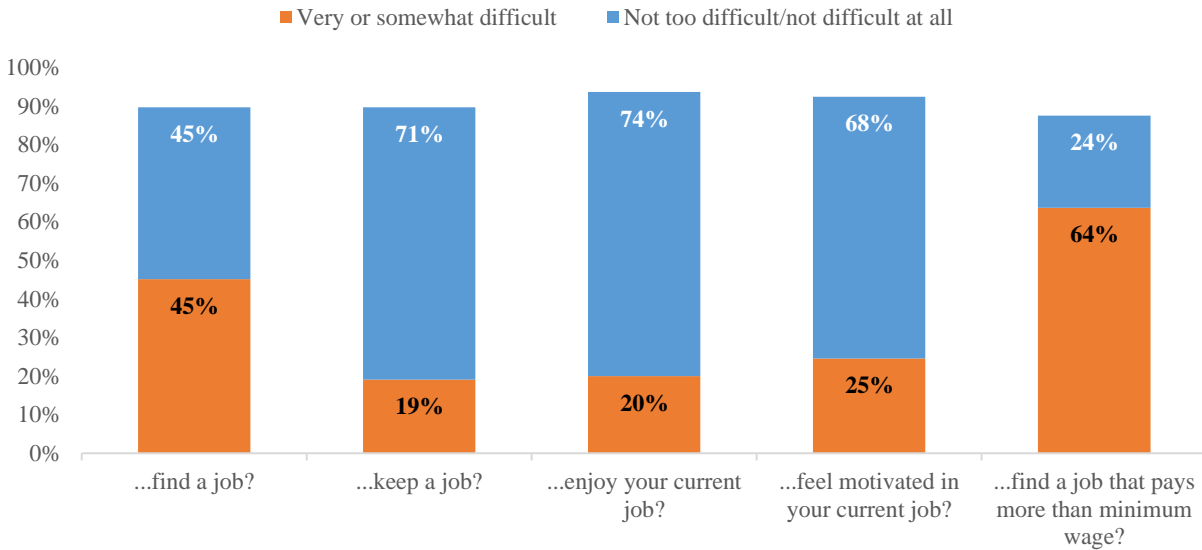
**Most households do not receive public assistance.** Over two-thirds of survey respondents (71.8 percent) stated they do not receive any type of public assistance. Of the respondents who do receive public assistance, the most common types of assistance received were Supplemental Nutrition Assistance Program (SNAP) (17.3 percent) and Medicaid (15.5 percent).

## Employment

Survey respondents work in over 20 different types of sectors. The most common sectors mentioned include hospitality, accommodation and food services; and retail/trade. From less than a year to over 35 years, respondents have been in their current job for an average of 6.5 years (median 3 years). Most workers surveyed work full-time (67.3 percent), with an average of 35.4 hours worked a week across all respondents.

One in 10 workers got a new job in the last year, while only 1 in 20 workers quit their job. When asked about the difficulties of finding, keeping, and staying motivated in a job, respondents stated it is more difficult to find a job or find a job that pays above minimum wage, while it is not difficult to keep a job, enjoy, or feel motivated in their current job. See Chart 21 below for details.



**CHART 21. DIFFICULTY OF FINDING AND ENJOYING JOB, GUAM HOUSEHOLDS****How difficult is it to...?***Among all respondents excluding don't know/refused, N=330**Source: Market Research & Development, Guam Household Quantitative Survey, 2017*

Almost a third of respondents do not receive benefits. As shown in Chart 22 below, a little over 50% of respondents receive health insurance through their employer. Less than half of households surveyed received any of the other benefits, including: health insurance for [their] spouse, domestic partner, or dependents; paid sick leave; paid vacation leave; paid holidays; undesignated leave or universal “Paid time off” (PTO); parental or family leave (bereavement, maternity/paternity leave, parent/teacher conferences); or contributions to a retirement or pension plan (401k, 403b, etc.). Benefits are common ways employers can support and retain employees, and not having benefits from employers may contribute to high expenses such as medical bills and taking paid time away from work for family obligations or holiday.

Many participants interviewed did not receive benefits or were unsure about their benefits. It was not uncommon for the interviewer to ask about a worker receiving Paid Time Off (PTO) or contributions to a retirement fund and have the worker unsure whether they received those. Here’s one excerpt around benefits that was a shared sentiment from many:

*Interviewer: “Okay, how about, do you have something called paid time off or PTO? Where she puts a certain amount of hours and if you need to do something, you can take it from that group of hours?”*

*Participant: “Umm... No, I’m not sure. I haven’t gotten to that yet.”*

*Interviewer: “How about family leave? Do you get family leave?”*

*Participant: “No, I don’t. Or, well not that I’ve tried yet.”*

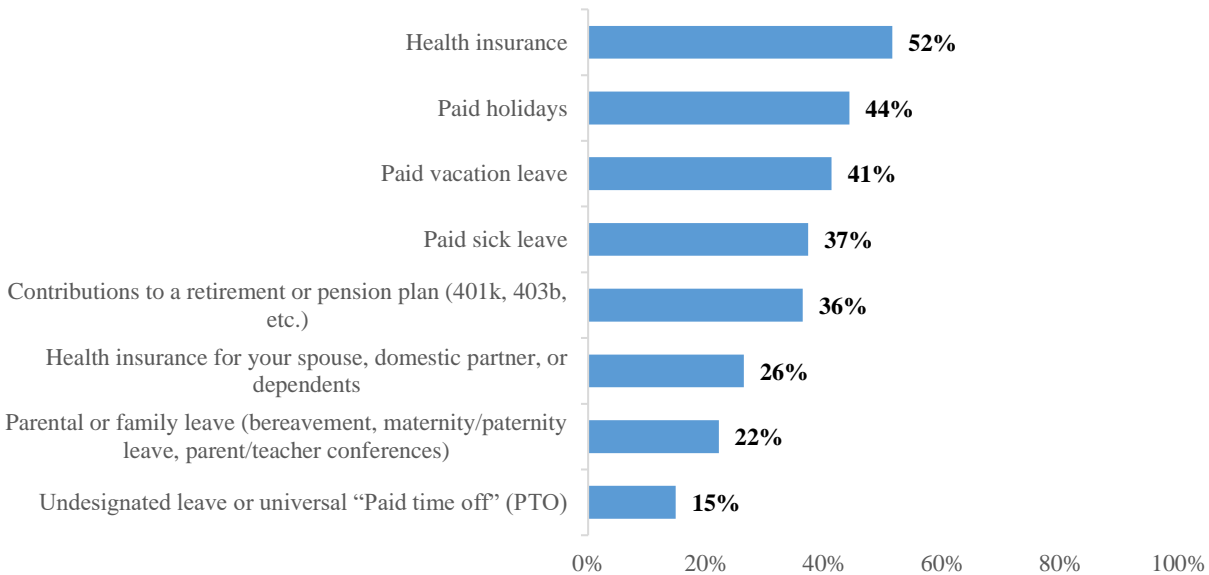
*Interviewer: “Does she contribute to a retirement plan or a pension plan for you?”*

*Participant: “No. I didn’t find anything so no, I didn’t.”*

## CHART 22. BENEFITS RECEIVED, GHS

**Which of the following benefits do you receive from your employer?**

*Among all respondents, N=330*



*Source: Market Research & Development, Guam Household Quantitative Survey, 2017*

**Most respondents can pay off bills each month.** Yet, only 47 percent of respondents have funds left over after paying bills for savings or leisure. Of the total sample, 15 percent cannot pay off all bills or don’t feel like they can ever make ends meet (see Chart 23 below). The most common expenses households include utilities (water, sewer, power, gas, phone), food, and transportation. Only 45 households (13.6%) said they put money away in savings or investments each month.

In the qualitative household interviews, few households have savings. Only 9 of 25 respondents said they could save money each month, while many respondents stated the difficulties of saving money. Multiple participants expressed trying to save money but ultimately needing it every month to pay bills. Common threads we heard from respondents were along the lines of:

*“All income goes to bills and kids’ needs”*

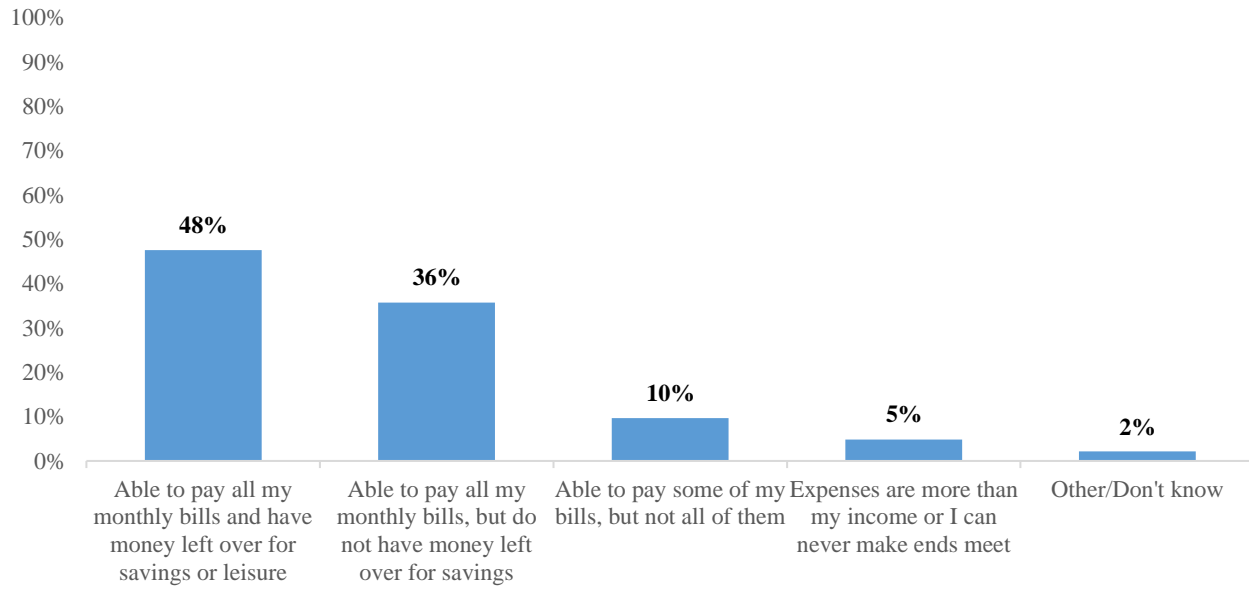
Additionally, in the qualitative household interviews, there are a few bill-paying strategies that respondents mentioned. Many workers stated being paycheck to paycheck and just barely able to make ends meet. Others rely on churches, family, and partners to pay bills. As one respondent stated when asked how they pay down their bills every month:

*“Well, every other paycheck, I’ve already divided like - let’s say the first paycheck, you got to pay for the car, the phone and then next paycheck, pay for the trash, the water, the car - like that”*

### CHART 23. TYPICAL MONTHLY SPENDING, GHS

**How would you describe your typical monthly spending?**

Among all respondents, N=330



Source: Market Research & Development, Guam Household Quantitative Survey, 2017

Rising expenses felt across households. Respondents in the qualitative interviews were varied in how they plan to address rising expenses in the future with many respondents unsure what they’ll do. Seven respondents talked about prioritizing expenses and staying within budget, while eight respondents plan to look for different or additional jobs. One respondent talked about possibly asking for a raise.

### Changes Since Last Increase in Minimum Wage

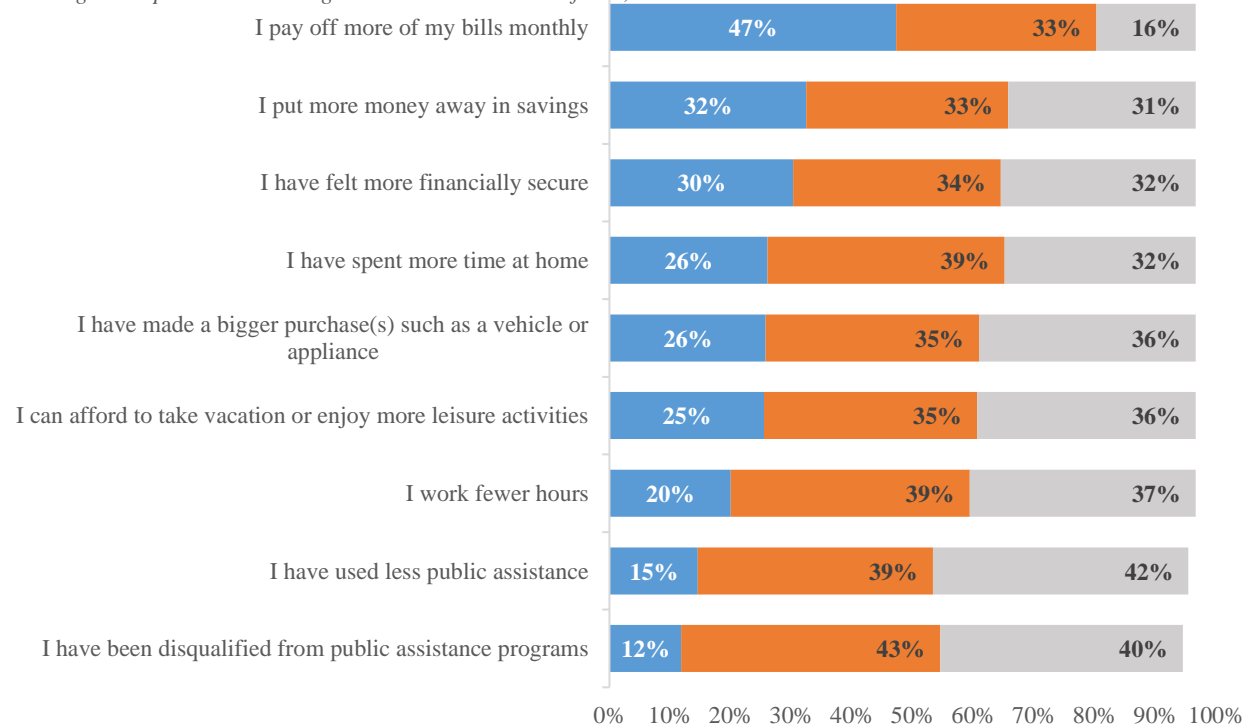
When respondents were asked, “Since the minimum wage increased from \$7.25 to \$8.25 last January, how much do you agree with the following statements regarding your household budget?”

there was a strong variety of responses. This lack of consensus about how the last minimum wage has impacted households truly shows the range of households living in Guam and their circumstances. There was not one question that most respondents agreed upon, though many (47.3 percent) agreed that they can pay off more of their monthly bills. Other than paying off bills, there is stronger feeling that households are not using less public assistance than they were previously. Between 30-40 percent of households have not observed any changes in their spending or saving habits since the increase in minimum wage in January 2015.

#### CHART 24. CHANGES TO HOUSEHOLD SINCE 2015 MINIMUM WAGE INCREASE

Since the minimum wage increased from \$7.25 to \$8.25 last January, how much do you agree with the following statements regarding your household budget?

Among all respondents excluding those who don't know/refused, N=330



Source: Market Research & Development, Guam Household Quantitative Survey, 2017

## VIII. SUMMARY

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This study was designed to identify impact of an hourly minimum wage increase from \$7.25 to \$8.25 on Guam in 2015. Following the presentation of findings, the research group calls attention to key findings about businesses, households, and Guam's economy.

The study hypothesized that the impact of this minimum wage increase would likely not have a significant effect on the overall condition of Guam's economy. A review of the island's macroeconomic indicators shows Guam to be in an expansionary phase of its business cycle. Leading indicators of GDP, employment, inflation, and others presented here confirm that the minimum wage has not negatively impacted Guam's economic progress. Employment trends show continued job and wage growth.

The Guam Business Survey confirms this finding. Few businesses report reductions in the number of workers, hours, or benefits in the year following the minimum wage increase to \$8.25 per hour. Many businesses interviewed indicated that they had absorbed higher minimum wages with no major disruption to their business activities, nor to the employees who work for them. Benefits, number of hours, and full-time employment did not change significantly because of a higher minimum wage to \$8.25 per hour.

The Guam Household Survey shows that minimum wage households, while somewhat better off because of the wage increase, report continued dependence on other types of assistance, such as family support or public benefits for food, housing, and utility expenses. This was not the finding for households who had at least one member of the household earning a minimum wage. For these households, most are not enrolled in public assistance programs of any kind and are more reliant on income and benefits from employment to support the household. Many households share concerns about quality of life as they try to keep pace with higher costs for goods and services on Guam.

Where the interests of businesses and households overlap appear to be on issues of developing worker skill. Businesses report wanting greater productivity from workers for whom they are now paying more; households report a desire to improve their skills to move beyond a minimum wage income as they recognize that quality of life will improve with better opportunities, particularly the opportunity to reduce the number of jobs held to have a better quality of life with family. The surveys show shared interests in benefits compensation, job stability, career advancement, and employee morale.

The research team reiterates its findings of no significant impact during this period of study without forecast of implications under other economic conditions.

## IX. RECOMMENDATIONS

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Although this study finds no impact of the hourly minimum wage increase to \$8.25 from indicators of Guam's economy, this research group provides recommendations to further the policy goals of improving Guam's economy for those who work and conduct business here.

The finding of no impact is based on interviews and data for 2015, the year in which the minimum wage increase was implemented. The study team recommends that the protocols for monitoring economic indicators for impact in future years be pursued.

Guam's economy may have been able to absorb the minimum wage increase as economic indicators show a growth phase at the time of implementation. The study team recommends that consideration be given to effects of this minimum wage increase under conditions of recession. The decisions by business firms and households may be different.

The study team recommends a broader consideration of compensation, rather than only wage. This study showed interest in valuing total compensation in household and business decisions.

Some firms reported that they did not raise prices because of competition. The nature of this competition was not explored in this study, so whether Guam's competitive market is coming from within the island or from off-island sources is not known. What is interesting is the reported actions by some firms to grow their businesses in new directions and to re-evaluate their businesses to gain efficiencies. These findings should be pursued for impact, as it appears the minimum wage increase may have been an incentive.

Future studies would benefit from data modernization initiatives being taken by various government agencies and should be pursued to make possible continued studies of Guam's economy.

Collaboration with agencies was important and the research benefitted from their contributions. Diverse perspectives working together to understand the impact of minimum wage has broadened our views on this and related subjects and should be continued.

## X. REFERENCES

- American Legislative Exchange Council. (2014, March). Raising the Minimum Wage: The Effects on Employment, Businesses, and Consumers. *American Legislative Exchange Council*. Retrieved from [https://www.alec.org/app/uploads/2014/03/2014-Raising\\_Minimum\\_wage.pdf](https://www.alec.org/app/uploads/2014/03/2014-Raising_Minimum_wage.pdf)
- Congressional Budget Office. (2014, February). The Effects of a Minimum-Wage Increase on Employment and Family Income. *Congressional Budget Office*. Retrieved from <http://www.cbo.gov/sites/default/files/cbofiles/attachments/44995-MinimumWage.pdf>
- Cruz, B.J.F. (n.d.). Cruz Resolved to Raise Minimum Wage. *The 33<sup>rd</sup> Guam Legislature*. Retrieved from <http://guam.shrm.org/sites/guam.shrm.org/files/PR%20RE%20Cruz%20Resolved%20to%20Raise%20Minimum%20Wage%2005052016.pdf>
- Daleno, G.D. (2016, January 4). Economist: Minimum wage raise may be doable. *Pacific Daily News*. Retrieved from <http://www.guampdn.com/story/news/2016/01/04/economist-minimum-wage-raise-may-doable/78249166/>
- First Hawaiian Bank. (2015). Guam: Fourth Straight Year of Stable Growth in 2015. *First Hawaiian Bank*. Retrieved from [https://www.fhb.com/en/assets/File/Marketing/2015\\_GuamCNMI\\_EconForecast.pdf](https://www.fhb.com/en/assets/File/Marketing/2015_GuamCNMI_EconForecast.pdf)
- Guam Department of Labor. (2015). Summary Economic Indicators. *Bureau of Labor Statistics*. Retrieved from <http://bls.guam.gov/summary-economic-indicators/>
- Kalenkoski, C.M. (2016, March). The effects of minimum wages of youth employment and income. *World of Labor*. Retrieved from <http://wol.iza.org/articles/effects-of-minimum-wages-on-youth-employment-and-income.pdf>
- Litwin, B.S. (2015, Spring). Determining the Effect of the Minimum Wage on Income Inequality. *The Cupola Scholarship at Gettysburg College*. Retrieved from [http://cupola.gettysburg.edu/cgi/viewcontent.cgi?article=1388&context=student\\_scholarship](http://cupola.gettysburg.edu/cgi/viewcontent.cgi?article=1388&context=student_scholarship)
- Neumark, D. (2015, December 21). The Effects of Minimum Wages on Employment. *Federal Reserve Bank of San Francisco*. Retrieved from <http://www.frbsf.org/economic-research/publications/economic-letter/2015/december/effects-of-minimum-wage-on-employment/>
- Quintanilla, K. (2016, March 18). What's the impact been of increasing minimum wage by \$1? *KUAM News*. Retrieved from <http://www.kuam.com/story/31441373/2016/03/Thursday/whats-the-impact-been-of-increasing-minimum-wage-by-1>
- Reich, M., Allegretto, S., Jacobs, K., Montialoux, C. (2016, March). The Effects of a \$15 Minimum Wage in New York State. *Center on Wage and Employment Dynamics*. Retrieved from <http://irle.berkeley.edu/files/2016/The-Effects-of-a-15-Minimum-Wage-in-New-York-State.pdf>
- Rocheteau, G., Tasci, M. (2017, May 1). The Minimum Wage and the Labor Market. *Federal Reserve Bank of Cleveland*. Retrieved from <https://www.clevelandfed.org/en/newsroom-and-events/publications/economic-commentary/economic-commentary-archives/2007-economic->



[commentaries/ec-20070501-the-minimum-wage-and-the-labor-market.aspx](#)